

UTAH

PM10 Maintenance Provisions for Salt Lake and Utah Counties and Ogden City

Section IX.A.10

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Section IX.A.10

PM10 Maintenance Provisions

IX.A.10.a Introduction

The foregoing Subsections 1-9 of Part IX.A of the Utah State Implementation Plans (SIP) were written in 1991 to address violations of the National Ambient Air Quality Standards (NAAQS) for PM₁₀ in both Utah County and Salt Lake County. These areas were each classified as Initial Moderate PM₁₀ Nonattainment Areas, and as such required “nonattainment SIPs” to bring them into compliance with the NAAQS by a statutory attainment date. The control measures adopted as part of those plans have proven successful in that regard, and at the time of this writing (2005) each of these areas has a substantial record of continued compliance with the federal health standards for PM₁₀.

This Subsection 10 of Part IX.A of the Utah SIP represents the second chapter of the PM₁₀ story, and demonstrates that Utah’s nonattainment areas have achieved compliance with the PM₁₀ NAAQS and will continue to maintain that standard through the year 2017. As such, it is written in accordance with Section 175A (42 U.S.C. 7505a) of the Act, and should serve to satisfy the requirement of Section 107(d)(3)(E)(iv), should Utah pursue the option of petitioning the EPA to ultimately redesignate any of its current nonattainment areas.

This section is hereafter referred to as the “Maintenance Plan” or “the Plan,” and contains the maintenance provisions of the PM₁₀ SIP for Utah County and Salt Lake County. Also included are the maintenance provisions for Ogden City. This third area was effectively designated to nonattainment for PM₁₀ on September 26, 1995.

While the Maintenance Plan could be written to replace all that had come before, it is presented herein as an addendum to Subsections 1-9 in the interest of providing the reader with some sense of historical perspective. Subsections 1-9 are retained for historical purposes, while existing subsection 10 (transportation conformity for Utah County) is herein replaced with a more current evaluation of transportation conformity.

In a similar way, any references to the Technical Support Document (TSD) in this section means actually Supplement III-05 to the Technical Support Document for the PM₁₀ SIP.

Background

The federal Clean Air Act requires areas failing to meet the federal ambient PM₁₀ standard to develop SIP revisions with sufficient control requirements to expeditiously attain and maintain the standard. On July 1, 1987, EPA promulgated a new NAAQS for particulate matter with a diameter of 10 microns or less (PM₁₀), and listed Salt Lake and Utah Counties as Group I areas for PM₁₀. This designation was based on historical data for the previous standard, total suspended particulate, and meant that there was a 95% probability that Group I areas would exceed the new PM₁₀ standard. Group I area SIPs were due in April 1988, but Utah was unable to complete the SIP by that date. In 1989, several citizens groups sued EPA (*Preservation Counsel v. Reilly*, civil Action (No. 89-C262-G (D, Utah)) for failure to implement a Federal Implementation Plan (FIP) under provisions of §110(c)(1) of the Clean Air Act (42 U.S.C. 7410(c)(1)). A settlement agreement in January 1990 called for Utah to submit a SIP and for EPA to approve it by

December 31, 1991. In August 1991, the parties voluntarily agreed to dismiss the lawsuit and the complaint and vacate the settlement agreement.

The Clean Air Act Amendments of November 1990 redesignated Group I areas as initial moderate nonattainment areas and required submittal by November 15, 1991, of a SIP requiring installation of Reasonably Available Control Measures (RACM) on industrial sources affecting the nonattainment areas by December 10, 1993. It required that states demonstrate attainment of the standard not later than December 31, 1994.

(1) The PM₁₀ SIP

On November 14, 1991, Utah submitted a SIP for Salt Lake and Utah Counties that demonstrated attainment of the PM₁₀ standards in Salt Lake and Utah Counties for 10 years, 1993 through 2003. EPA published approval of the SIP on July 8, 1994 (59 FR 35036).

(2) Supplemental History of SIP Approval - PM₁₀

Utah's SIP included two provisions that promised additional action by the state: 1) a road salting and sanding program, and 2) a diesel vehicle emissions inspection and maintenance program.

On February 3, 1995, Utah [submitted][submittal] amendments to the SIP to specify the details of the road salting and sanding program promised as a control measure. EPA published approval of the road salting and sanding provisions on December 6, 1999 (64 FR 68031).

On February 6, 1996, Utah submitted to EPA a new SIP Section XXI, a diesel vehicle inspection and maintenance program. EPA has not acted on that submittal.

Also, in April 1992, EPA published the "General Preamble," describing EPA's views on reviewing state SIP submittals. One of the requirements was that moderate nonattainment area states must submit contingency plans by November 15, 1993.

On July 31, 1994, Utah submitted an amendment to the PM₁₀ SIP that required lowering the threshold for calling no-burn days as a contingency measure for Salt Lake, Davis and Utah Counties. On July 17, 1995, Utah added another contingency measure for Utah County, requiring that Utah County implement an enhanced vehicle emissions inspection and maintenance program or an equivalent program to reduce emissions of nitrogen oxide by January 1, 1995.

On July 18, 1997, EPA promulgated a new form of the PM₁₀ standard. As a way to simplify EPA's process of revoking the old PM₁₀ standard, EPA requested on April 6, 1998, that Utah withdraw its submittals of contingency measures. Utah submitted a letter requesting withdrawal on November 9, 1998, and EPA returned the submittals on January 29, 1999.

(3) Attainment of the PM₁₀ Standard and Reasonable Further Progress

By statute, Initial Moderate Areas had to show they were attaining the standard by December 31, 1994. This showing required examining the last three years of monitoring data (in this case 1992, 1993 and 1994). The 24-hour NAAQS allows no more than three expected exceedances of the 24-hour standard at any monitor in this 3-year period. Since the statutory deadline for the implementation of RACM was not until the end of 1993, it was reasonable to presume that the area might not be able to show attainment with a 3-year data set until the end of 1996 even if the control measures were having the desired effect. For this reason, the Clean Air Act §188(d), (42 U.S.C. 7513(d)) allows a state to request up to two 1-year extensions of the attainment date. In

1 doing so, the state must show that it has met all requirements of the SIP, that no more than one
2 exceedance of the 24-hour PM₁₀ NAAQS has been observed in the year prior to the request, and
3 that the annual mean concentration for such year is less than or equal to the annual standard.

4
5 EPA's Office of Air Quality Planning and Standards issued a guidance memorandum concerning
6 extension requests (November 14, 1994), clarifying that the authority delegated to the
7 Administrator to extend attainment dates for moderate areas is discretionary. In exercising this
8 discretionary authority, it says, EPA will examine the air quality planning progress made in the
9 area, and in addition to the two criteria specified in Section 188(d), EPA will be disinclined to
10 grant an attainment date extension unless a state has, in substantial part, addressed its moderate
11 PM₁₀ planning obligations for the area. The EPA will expect the State to have adopted and
12 substantially implemented control measures submitted to address the requirement for
13 implementing RACM/RACT in the moderate nonattainment area, as this was the central control
14 requirement applicable to such areas. Furthermore it said, "EPA believes this request is
15 appropriate, as it provides a reliable indication that any improvement in air quality evidenced by a
16 low number of exceedances reflects the application of permanent steps to improve the air quality
17 in the region, rather than temporary economic or meteorological changes." As part of this
18 showing, EPA expected the State to demonstrate that the PM₁₀ nonattainment area has made
19 emission reductions amounting to reasonable further progress (RFP) toward attainment of the
20 NAAQS, as defined in Section 171(1) of the Act.

21
22 On May 11, 1995, Utah requested one-year extensions of the attainment date for both Salt Lake
23 and Utah Counties. On October 18, 1995, EPA sent a letter granting the requests for extensions,
24 and on January 25, 1996, sent a letter indicating that EPA would publish a rulemaking action on
25 the extension requests. However, no rulemaking was published, nor was a notice published that
26 the areas had not reached attainment by December 31, 1994. On March 27, 1996, Utah requested
27 a second one-year extension for Utah County; no rulemaking was published to grant that
28 extension, nor was a notice published stating that Utah County had not reached attainment by
29 December 31, 1995.

30
31 Along with the extension requests in 1995, Utah submitted a milestone report as required under
32 CAA §172(1), (42 U.S.C. 7501(1)) to assess progress toward attainment. This milestone report
33 addressed two issues: 1) that all control measures in the approved plan had been implemented,
34 and 2) that reasonable further progress (RFP) had been made toward attainment of the standard in
35 terms of reducing emissions. As defined in Section 171(1), RFP means such annual incremental
36 reductions in emissions of the relevant air pollutant as are required to ensure attainment of the
37 applicable NAAQS by the applicable date.

38
39 On June 18, 2001, EPA published notice in the Federal Register (66 FR 32752) that Utah's
40 extension requests were granted, that Salt Lake County attained the PM₁₀ standard by December
41 31, 1995, and that Utah County attained the standard by December 31, 1996. The notice stated
42 that these areas remain moderate nonattainment areas and are not subject to the additional
43 requirements of serious nonattainment areas.

44 45 **(4) Ogden City**

46
47 As mentioned above, Ogden City was designated from unclassifiable to nonattainment on
48 September 26, 1995. This was due to a total of six exceedances of the 24-hour standard recorded
49 between January 1991 and January 1993. Along with redesignation came the requirement for a
50 nonattainment SIP, due in 18 months, and an attainment date of December 31, 2001.

1 However, in 1997 a new standard for PM₁₀ was promulgated by the EPA, and, based on the
2 revised form of this new standard, Ogden City would never have been found to be in
3 noncompliance.

4
5 In an effort to transition to the new form of the PM₁₀ standard, EPA issued its Interim
6 Implementation Guidance (IIG) on December 23, 1997. This, in conjunction with additional
7 guidance (5/8/98 memorandum from Sally L. Shaver to all Regional Air Directors) identified two
8 steps necessary to revoke the old standard for areas like Ogden City that were presently (as of
9 September 16, 1997) attaining the standard. The State would need to: 1) codify into its SIP any
10 existing controls that were implemented at the state level, and 2) demonstrate the state's capacity
11 to implement the revised PM₁₀ standards with respect to the Clean Air Act (CAA) requirements
12 found at Section 110.

13
14 By letter of March 27, 1998, Utah declared it could meet the second of these requirements for all
15 areas of the state. A second letter (June 25, 1998) addressed the first requirement, and requested
16 that the old PM₁₀ standard be revoked and that the outstanding Part D requirement be waived for
17 Ogden City.

18
19 EPA responded in a letter dated August 12, 1999 that the rationale for revoking the old standard
20 would no longer apply because the United States D.C. Circuit Court of Appeals had, on May 14,
21 1999, vacated the 1997 PM₁₀ NAAQS. This meant that Utah's obligation to satisfy the Part D
22 requirements with respect to the pre-1997 NAAQS was still outstanding.

23
24 In the wake of the ruling by the D.C. Circuit, EPA (on October 18, 1999) made available its PM₁₀
25 Clean Data Areas Approach, providing areas like Ogden City with another avenue by which to
26 satisfy any outstanding Part D requirements. This applied EPA's clean data policy concept for
27 ozone to selected PM₁₀ nonattainment areas with simple PM₁₀ source problems such as residential
28 wood combustion and fugitive dust. The area would have to: 1) be attaining the NAAQS with the
29 three most recent years of quality assured air quality data, 2) continue to operate an appropriate
30 PM₁₀ monitoring network in order to verify the attainment status of the area, and 3) the control
31 measures responsible for bringing the area into attainment must be approved by EPA. EPA
32 would also need to find that the area had adopted RACM/RACT, and make a finding that the area
33 attained the 24-hour and annual PM₁₀ NAAQS. Should these criteria be met, the area would no
34 longer have to meet the criteria for developing RFP demonstrations, and contingency measures
35 would be waived. Also any sanction clocks that may have been running would be stopped.

36
37 Utah addressed these criteria for Ogden City in a letter dated March 30, 2000. In particular, it
38 identified a number of control measures that applied to nonattainment areas in general and were
39 at least partly responsible for bringing the area into compliance with the PM₁₀ NAAQS. Since
40 these measures (open burning rule, visible emissions rule, fugitive dust rule, and vehicle I/M)
41 were incorporated into the Utah SIP, and since the IIG had indicated that it would be
42 inappropriate to require any new control measures, it could be concluded that the Part D planning
43 requirements for Ogden City had been satisfied. The March 30, 2000, letter cited agreement
44 between the respective agencies on these three criteria, and accordingly petitioned EPA to note in
45 the Federal Register that the Part D planning requirements for Ogden City had in fact been
46 satisfied. It also acknowledged that such action would not constitute a redesignation under CAA
47 Section 107, and that if the State wished to request that Ogden City be redesignated to attainment,
48 then subsequent action must be taken under CAA Section 175[A].

49
50 Also acknowledged was the obligation to produce a basic emissions inventory for Ogden City to
51 the satisfaction of EPA Region VIII. After a period of public review and comment, the inventory
52 was transmitted to EPA on August 9, 2001. The State identified this inventory as the only

1 remaining element among the criteria outlined in the PM₁₀ Clean Data Areas Approach, and again
2 requested that EPA find in the Federal Register that Utah had fulfilled its planning requirements
3 for Ogden City, under Part D of the CAA.

4
5 Utah had been collecting ambient PM₁₀ data at the Ogden site (AIRS # 49-057-0001) since April
6 of 1987, and had no intentions of discontinuing data collection at that site. However, in February
7 of 2000 the structure on which the monitor was situated was demolished, and it was not until July
8 1, 2001 that collection could resume at a new location (AIRS # 49-057-0002). Unfortunately, this
9 meant that EPA could take no action. Although Utah was again meeting the second criteria of the
10 PM₁₀ Clean Data Areas Approach (to continue monitoring), the first criterion was now called into
11 question. Although the data collected from 1994 through February of 2000 showed continued
12 compliance with the NAAQS, Utah did not have data for the three most recent years.

13
14 This was addressed in a letter to EPA dated November 6, 2001. Attached to that letter was an
15 analysis intended to provide both EPA and the public that the ambient air within Ogden City had
16 remained within the standards set for public health. This quantitative analysis, based on a
17 surrogate monitor, concluded that the likelihood of having violated the PM₁₀ NAAQS in Ogden
18 City during that time was less than one in 1,500. It was suggested that EPA could use this
19 information to help conclude that Ogden City was attaining the PM₁₀ NAAQS as of its statutory
20 attainment date (December 31, 2001), and was attaining the PM₁₀ NAAQS to the extent that it
21 would remain eligible for the PM₁₀ Clean Data Areas Approach.

22
23 As of the date of this writing (2005), Utah has collected three full calendar years of ambient data
24 at the new Ogden site (2002, 2003, and 2004). Based on this 3-year data set, Ogden City is
25 attaining the PM₁₀ NAAQS. Utah has once again (by letter of February 15, 2005) petitioned EPA
26 to find in the Federal Register that it has satisfied its planning obligation under Part D of the CAA
27 for Ogden City.

29 **IX.A.10.b Pre-requisites to Area Redesignation**

30
31 The Clean Air Act §107(d)(3)(E) outlines five requirements that must be satisfied in order that a
32 state may petition the Administrator to redesignate a nonattainment area back to attainment.
33 These requirements are summarized as follows: 1) the Administrator determines that the area has
34 attained the applicable NAAQS, 2) the Administrator has fully approved the applicable
35 implementation plan for the area under §110(k), 3) the Administrator determines that the
36 improvement in air quality is due to permanent and enforceable reductions in emissions resulting
37 from implementation of the applicable implementation plan ... and other permanent and
38 enforceable reductions, 4) the Administrator has fully approved a maintenance plan for the area
39 as meeting the requirements of §175A, and 5) the State containing such area has met all
40 requirements applicable to the area under §110 and Part D.

41
42 Each of these requirements will be addressed below. Certainly, the central element from this list
43 is the maintenance plan found at Subsection IX.A.10.c below. Section 175A of the Act contains
44 the necessary requirements of a maintenance plan, and EPA policy based on the Act requires
45 additional elements in order that such plan be federally approvable. Table IX.A.29 identifies the
46 prerequisites that must be fulfilled before a nonattainment area may be redesignated to attainment
47 under Section 107(d)(3)(E).

1

Table IX.A.29 Prerequisites to Redesignation			
Category	Requirement	Reference	Addressed in Section
Attainment of Standard	Three consecutive years of PM ₁₀ monitoring data must show that violations of the standard are no longer occurring.	CAA §107(d)(3)(E)(i)	IX.A.10.b(1)
Approved State Implementation Plan	The SIP for the area must be fully approved.	CAA §107(d)(3)(E)(ii)	IX.A.10.b(2)
Permanent and Enforceable Emissions Reductions	The State must be able to reasonably attribute the improvement in air quality to emission reductions that are permanent and enforceable	CAA §107(d)(3)(E)(iii), Calcagni memo (Sect 3, para 2)	IX.A.10.b(3)
Section 110 and Part D requirements	The State must verify that the area has met all requirements applicable to the area under section 110 and Part D.	CAA: §107(d)(3)(E)(v), §110(a)(2), Sec 171	IX.A.10.b(4)
Maintenance Plan	The Administrator has fully approved the Maintenance Plan for the area as meeting the requirements of CAA §175A	CAA: §107(d)(3)(E)(iv)	IX.A.10.b(5) and IX.A.10.c

2

3

4 (1) The Area Has Attained the PM₁₀ NAAQS

5 CAA 107(d)(3)(E)(i) - *The Administrator determines that the area has attained the national*
6 *ambient air quality standard.* To satisfy this requirement, the State must show that the area is
7 attaining the applicable NAAQS. According to EPA's guidance concerning area redesignations
8 (Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni to
9 Regional Air Directors, September 4, 1992 [or, Calcagni]), there are generally two components
10 involved in making this demonstration. The first relies upon ambient air quality data which
11 should be representative of the area of highest concentration and should be collected and quality
12 assured in accordance with 40 CFR 58. The second component relies upon supplemental air
13 quality modeling. Each will be discussed in turn.

14 (a) Ambient Air Quality Data (Monitoring)

15

16 In 1987 EPA promulgated the National Ambient Air Quality Standard (NAAQS) for PM₁₀. The
17 NAAQS for PM₁₀ is listed in 40 CFR 50.6 along with the criteria for attaining the standard. The
18 24-hour NAAQS is 150 micrograms per cubic meter (ug/m³) for a 24-hour period, measured from
19 midnight to midnight. The 24-hour standard is attained when the expected number of days per
20 calendar year with a 24-hour average concentration above 150 ug/m³, as determined in
21 accordance with Appendix K to that part, is equal to or less than one. In other words, each
22 monitoring site is allowed up to three expected exceedances of the 24-hour standard within a
23 period of three calendar years. More than three expected exceedances in that three-year period is
24 a violation of the NAAQS. There is also an annual standard of 50 ug/m³. The annual standard is
25 attained if the three-year average of individual annual averages is less than 50 ug/m³. Three
26 consecutive years of PM₁₀ monitoring data must show that violations of the 24-hour and annual
27 standard are no longer occurring in order for an area to be considered to be attaining the NAAQS.

28

29 40 CFR 58 Appendix K, Interpretation of the National Ambient Air Quality Standards for
30 Particulate Matter, acknowledges the uncertainty inherent in measuring ambient PM₁₀

concentrations by specifying that an *observed exceedance* of the (150 ug/m³) 24-hour health standard means a daily value that is above the level of the 24-hour standard after rounding to the nearest 10 ug/m³ (e.g., values ending in 5 or greater are to be rounded up).

The term *expected exceedance* accounts for the possibility of missing data. Missing data can occur when a monitor is being repaired, calibrated, or is malfunctioning, leaving a time gap in the monitored readings. EPA discounts these gaps if the highest recorded PM₁₀ reading at the affected monitor on the day before or after the gap is not more than 75 percent of the standard, and no measured exceedance has occurred during the year.

Expected exceedances are calculated from the Aerometric Information and Retrieval System (AIRS) data base according to procedures contained in 40 CFR Part 50, Appendix K. The State relied on the expected exceedance values contained in the AIRS Quick Look Report (AMP 450) to determine if a violation of the standard had occurred. [In compiling the data to be evaluated herein, any data which had been flagged by DAQ and which had not yet been concurred with by EPA was not considered. Data is flagged when circumstances indicate that it would represent an outlier in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. Appendix N to Part 50 – “Interpretation of the National Ambient Air Quality Standards for Particulate Matter” anticipates this and states: “Data resulting from uncontrollable or natural events, for example structural fires or high winds, may require special consideration. In some cases, it may be appropriate to exclude these data because they could result in inappropriate values to compare with the levels of the PM standards.” The protocol for data handling dictates that flagging is initiated by the state or local agency, and then the EPA either concurs or indicates that it has not concurred. When data is flagged, it is generally not used for planning purposes because it is not indicative of either the assumptions upon which airshed management decisions are made or the ultimate effects of those decisions. Nevertheless, some discussion will be provided that indicates what the ramifications of this data would be if it were to have been included.]~~[Any data which had been flagged as inappropriate for use in making such determinations, whether concurred with by EPA or not, was not considered here.]~~

Using this criteria, data was compiled for all PM₁₀ monitors within the three nonattainment areas that recorded a three-year data set comprising the years 2002, 2003 and 2004. For each monitor, the number of expected exceedances is reported for each year, and then the average number of expected exceedances is reported for the three-year period. If this average number of expected exceedances is less than or equal to 1.0, then that particular monitor is said to be in compliance with the 24-hour standard for PM₁₀. In order for an area to be in compliance with the NAAQS, every monitor within that area must be in compliance.

In a similar way, the annual arithmetic mean concentrations of PM₁₀ are reported for each year, and then averaged to produce the result that is compared with the annual PM₁₀ standard of 50 ug/m³.

As illustrated in the tables below, the results of this exercise show that each of the three PM₁₀ nonattainment areas is presently attaining the NAAQS.

[Table IX.A.30 PM10 Compliance in Salt Lake County, 2002-2004]

Cottonwood 49-035-0003	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	31.9
2003	0.0	28.3
2004	0.0	31.5
3-Year Average	0.0	30.6

North Salt Lake 49-035-0012	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	41.4
2003	0.0	37.6
2004	0.0	41.7
3-Year Average	0.0	40.2

Magna 49-035-1001	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	25.0
2003	0.0	22.7
2004	0.0	23.9
3-Year Average	0.0	23.9

Hawthorne 49-035-3006	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	28.9
2003	0.0	25.9
2004	0.0	29.1
3-Year Average	0.0	28.0

Table IX.A.30 PM₁₀ Compliance in Salt Lake County, 2002-2004

Cottonwood 49-035-0003	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	31.9
2003	0.0	28.3
2004	0.0	31.5
3-Year Average	0.0	30.6

North Salt Lake 49-035-0012	24-hr Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	41.4
2003	0 / 3.1*	37.6 / 39.7*
2004	0 / 1.0*	41.7 / 42.1*
3-Year Average	0 / 1.4*	40.2 / 41.1*

Magna 49-035-1001	24-hr Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	25.0
2003	0 / 3.1*	22.7 / 26.2*
2004	0.0	23.9
3-Year Average	0 / 1.0*	23.9 / 25.0*

Hawthorne 49-035-3006	24-hr Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	28.9
2003	0 / 2.1*	25.9 / 27.7*
2004	0.0	29.4
3-Year Average	0 / 0.7*	28.1 / 28.7*

Additional information presented in Subsection IX.A.10.b(3) shows that the Salt Lake County PM₁₀ nonattainment area has not ~~[violated]~~~~[exceeded]~~ the 24-hour standard since 1992~~[, nor has it exceeded the annual standard since 1993]~~. It actually attained ~~[both standards]~~~~[the standard]~~ as of December 31, 1995, and has remained in compliance with the PM₁₀ NAAQS through 2004.

[The second set of numbers, indicated by the asterisks, shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA.]

At the Cottonwood monitor: there were no such data points, and so there would be no difference.

At the North Salt Lake monitor: there were three days in 2003 (169 ug/m³ on Feb. 1, 358 ug/m³ on April 1, and 209 ug/m³ on April 2) and another day in 2004 (189 ug/m³ on May 10) that were all flagged by DAQ because of high winds. In each case, the Salt Lake Valley experienced a very dusty wind event due to a dry frontal passage, and elevated concentrations were observed and flagged at other monitor locations. Each of these events has been included in the proposed Natural Events Action Plan (NEAP) as typifying the circumstances under which it would be appropriate to attach a flag to the data. DAQ expects that the EPA will concur with the flags

1 when it approves the NEAP. Such concurrence would indicate that, despite regional control
2 measures and mitigative action to address fugitive dust, the wind-speeds were such that it would
3 be unreasonable to expect that high concentrations of blowing dust could have been prevented.
4

5 At the Magna monitor: there was one day in 2003 (421 ug/m3 on April 1) that was flagged by
6 DAQ because of high winds. On this day, the Wasatch Front experienced a very dusty wind
7 event due to a dry frontal passage, and elevated concentrations were observed and flagged at
8 other monitor locations. This event has been included in the proposed Natural Events Action
9 Plan (NEAP) as typifying the circumstances under which it would be appropriate to attach a flag
10 to the data. DAQ expects that the EPA will concur with the flag when it approves the NEAP.
11 Even if EPA does not concur with the flag at Magna, the 3-year average of expected exceedances
12 there would not exceed 1.0, and the 3-year average of annual arithmetic mean concentrations
13 would be less than 50. Therefore, the overall conclusion at Magna would remain the same.
14

15 At the Hawthorne monitor: there were two days in 2003 (162 ug/m3 on Feb. 1, and 360 ug/m3 on
16 April 1) that were flagged by DAQ because of high winds. In both cases, the Salt Lake Valley
17 experienced a very dusty wind event due to a dry frontal passage, and elevated concentrations
18 were observed and flagged at other monitor locations. Both of these events have been included in
19 the proposed Natural Events Action Plan (NEAP) as typifying the circumstances under which it
20 would be appropriate to attach a flag to the data. DAQ expects that the EPA will concur with the
21 flags when it approves the NEAP. Even if EPA does not concur with the flag at Hawthorne, the
22 3-year average of expected exceedances there would still be less than 1.0, and the 3-year average
23 of annual arithmetic mean concentrations would be less than 50. Therefore, the overall
24 conclusion at Hawthorne would remain the same.]
25

~~Table IX.A.31 PM10 Compliance in Utah County, 2002-2004~~

North Provo 49-049-0002	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	28.6
2003	0.0	23.0
2004	0.0	24.6
3-Year Average	0.0	25.4

Lindon 49-049-4001	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	31.7
2003	0.0	24.7
2004	0.0	28.5
3-Year Average	0.0	28.3

Table IX.A.31 PM10 Compliance in Utah County, 2002-2004

North Provo 49-049-0002	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	28.6
2003	0.0	23.0
2004	0.0	24.6
3-Year Average	0.0	25.4

Lindon 49-049-4001	24-hr Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0 / 1.0*	31.7 / 32.4*
2003	0.0	25.4
2004	0 / 1.0*	28.5 / 28.9*
3-Year Average	0 / 0.7*	28.5 / 28.9*

Additional information presented in Subsection IX.A.10.b(3) shows that the Utah County PM₁₀ nonattainment area has not exceeded the 24-hour standard since 1993. It actually attained the standard as of December 31, 1996, and has remained in compliance with the PM₁₀ NAAQS through 2004. The annual standard was never violated.

[The second set of numbers, indicated by the asterisks, shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA.]

At the North Provo monitor - there were no such data points, and so there would be no difference.

At the Lindon monitor - there was one day in 2002 (288 ug/m3 on April 15) , and another day in 2004 (159 ug/m3 on May 10) that were both flagged by DAQ because of high winds. On both days, the Utah Valley experienced a very dusty wind event, and elevated concentrations were observed and flagged at other monitor locations (or would likely have been on 4/15/02 had the other stations not lost power). Both events have been included in the proposed Natural Events

Action Plan (NEAP) as typifying the circumstances under which it would be appropriate to attach a flag to the data. DAQ expects that the EPA will concur with these flags when it approves the NEAP. Such concurrence would indicate that, despite regional control measures and mitigative action to address fugitive dust, the wind-speeds were such that it would be unreasonable to expect that high concentrations of blowing dust could have been prevented.

Even if EPA did not concur with the flags at Lindon, the 3-year average of expected exceedances there would be less than 1.0, and the 3-year average of annual arithmetic mean concentrations would be less than 50. Therefore, the overall conclusion would remain the same. Utah County is attaining the PM₁₀ NAAQS with the three most recent years of air quality data.]

[Table IX.A.32 — PM10 Compliance in Ogden, 2002-2004

Ogden2 49-057-0001	24-hour Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	0.0	34.4
2003	0.0	28.0
2004	0.0	27.9
3-Year Average	0.0	30.1

Table IX.A.32 PM10 Compliance in Ogden, 2002-2004

Ogden2 49-057-0001	24-hr Standard	Annual Standard
	No. Expected Exceedences	Annual Arithmetic Mean
2002	1.0	34.7
2003	1.0/2.0*	28.7/29.3*
2004	0.0	28.2
3-Year Average	0.7/1.0*	30.5/30.7*

Additional information presented in Subsection IX.A.10.b(3) shows that the Ogden City PM₁₀ nonattainment area has not exceeded the 24-hour standard since 1993. It actually attained the standard as of December 31, 1996, and has remained in compliance with the PM₁₀ NAAQS through 2004. The annual standard was never violated.

[The second set of numbers, indicated by the asterisks, shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA.

At the Ogden2 monitor - there was one day in 2003 (229 ug/m³ on April 1) that was flagged by DAQ because of high winds. On this day, the Wasatch Front experienced a very dusty wind event due to a dry frontal passage, and elevated concentrations were observed and flagged at other monitor locations. This event has been included in the proposed Natural Events Action Plan (NEAP) as typifying the circumstances under which it would be appropriate to attach a flag to the data. DAQ expects that the EPA will concur with the flag when it approves the NEAP. Such concurrence would indicate that, despite regional control measures and mitigative action to address fugitive dust, the wind-speeds were such that it would be unreasonable to expect that high concentrations of blowing dust could have been prevented.

1
2 There were also two other exceedances that were flagged on the 4th of July; one in 2002 (163
3 ug/m3) and the other in 2003 (204 ug/m3). In both cases, EPA has not concurred with the flags.
4 Investigation by DAQ found that they were both caused by a local neighborhood fireworks
5 celebration in the same parking lot where the monitor is located. Even though DAQ does not
6 believe that the high concentrations there were indicative of the entire Ogden area, there does not
7 exist (in the protocol) an appropriate reason to flag the data. Therefore, EPA did not concur.

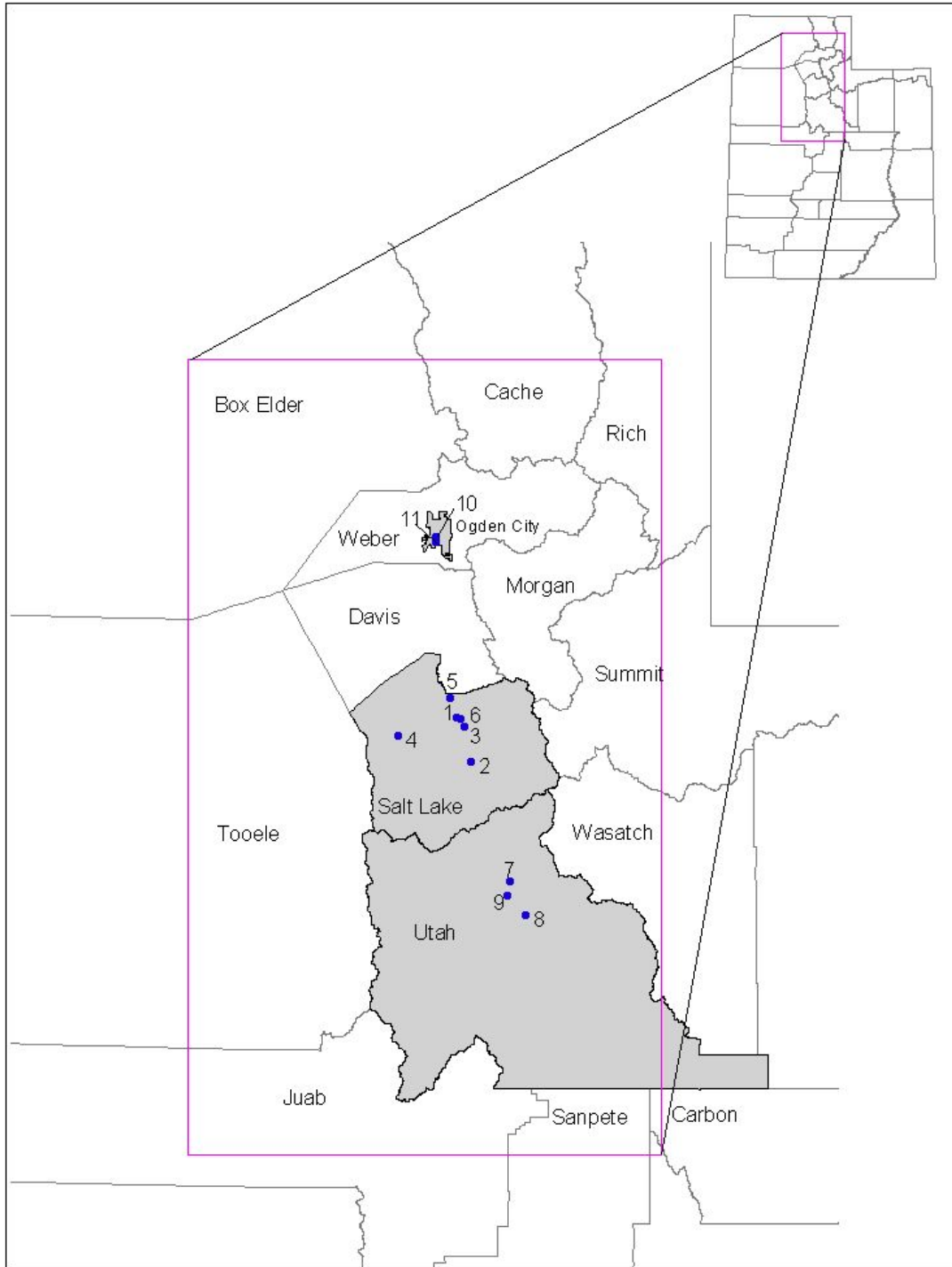
8
9 Nevertheless, even if EPA were to not concur with the high wind flag from 2003, the 3-year
10 average of expected exceedances at Ogden would not exceed 1.0, and the 3-year average of
11 annual arithmetic mean concentrations would be less than 50. Therefore, the overall conclusion
12 would remain the same. Ogden City is attaining the PM₁₀ NAAQS with the three most recent
13 years of air quality data.]

14 15 16 **(b) PM₁₀ Monitoring Network**

17
18 The overall assessments made in the preceding paragraph were based on data collected at
19 monitoring stations located throughout the nonattainment areas. The Utah DAQ maintains a
20 network of PM₁₀ monitoring stations in accordance with 40 CFR 58. These stations are referred
21 to as SLAMS sites, meaning that they are State and Local Air Monitoring Stations. In
22 consultation with EPA, an Annual Monitoring Network Review is developed to address the
23 adequacy of the monitoring network for all criteria pollutants. Within the network, individual
24 stations may be situated so as to monitor large sources of PM₁₀, capture the highest
25 concentrations in the area, represent residential areas, or assess regional concentrations of PM₁₀.
26 Collectively, these monitors make up Utah's PM₁₀ monitoring network. The following
27 paragraphs describe the network in each of Utah's three nonattainment areas for PM₁₀.

28
29 Provided in Figure IX.A.23 is a map of the modeling domain that shows the existing PM₁₀
30 nonattainment areas and the locations of the monitors therein. Some of the monitors at these
31 locations are no longer operational, but they have been included for informational purposes.
32
33

1 **Figure IX.A.23 Modeling Domain**



2
3 The following PM₁₀ monitoring stations operated in the Salt Lake County PM₁₀ nonattainment
4 area from 1985 through 2004. They are numbered as they appear on the map:
5

- 6 1. Air Monitoring Center (AMC) (AIRS number 49-035-0010): This site was located in an
7 urban city center, near an area of high vehicle use. It was closed in 1999 when DAQ lost
8 its lease on the building.

2. Cottonwood (AIRS number 49-035-0003): This site is located in a suburban residential area. It has been collecting data since 1986.
3. Hawthorne (AIRS number 49-035-3006): This site is located in a suburban residential area. It began collecting data in 1997.
4. Magna (AIRS number 49-035-1001): This site is located in a suburban residential area. It is largely impacted (at times) by blowing dust from a large tailings impoundment, and as such is anomalous with respect to the typical wintertime scenario that otherwise characterizes the nonattainment area. It has been collecting data since 1987.
5. North Salt Lake (AIRS number 49-035-0012): This site is located in an industrial area that is impacted by sand and gravel operations, freeway traffic, and several refineries. It is situated near a residential area as well. It has been collecting data since 1985.
6. Salt Lake City (AIRS number 49-035-3001): This site was situated in an urban city center. It was discontinued in 1994 because of modifications that were made to the air conditioning on the roof-top.

The following PM₁₀ monitoring stations operated in the Utah County PM₁₀ nonattainment area from 1985 through 2004. They are numbered as they appear on the map:

7. Lindon (AIRS number 49-049-4001): This site is designed to measure population exposure to PM₁₀. It is located in a suburban residential area affected by both industrial and vehicle emissions. PM₁₀ has been measured at this site since 1985, and the readings taken here have consistently been the highest in Utah County. Area source emissions, primarily wood smoke, also affects the site.
8. North Provo (AIRS number 49-049-0002): This is a neighborhood site in a mixed residential-commercial area in Provo, Utah. It began collecting data in 1986.
9. West Orem (AIRS number 49-049-5001): This site is located in a residential area adjacent to a large steel mill. It is a neighborhood site. It was situated based on computer modeling, and has historically reported high PM₁₀ values, but not consistently as high as those observed at the Lindon site. The site was closed at the end of 1997 for this reason.

The following PM₁₀ monitoring stations operated in the Ogden City PM₁₀ nonattainment area from 1986 through 2004. They are numbered as they appear on the map:

10. Ogden 1 (AIRS number 49-057-0001): This site was situated in an urban city center. It was discontinued in 2000 because DAQ lost its lease on the building.
11. Ogden 2 (AIRS number 49-057-0002): This site began collecting data in 2001, as a replacement for the Ogden 1 location. It too is situated in an urban city center.

(c) Modeling Element

EPA guidance concerning redesignation requests and maintenance plans (Calcagni) discusses the requirement that the area has attained the standard, and notes that air quality modeling may be necessary to determine the representativeness of the monitored data.

Information concerning PM₁₀ monitoring in Utah is included in the Annual Monitoring Network Review. Since the early 1980's, the network review has been updated annually and submitted to EPA for approval. EPA has concurred with the annual network reviews and agreed that the network is adequate. EPA personnel have also visited the monitor sites on several occasions to verify compliance with federal siting requirements.

1 The Calcagni memo goes on to say that areas that were designated nonattainment based on
2 modeling will generally not be redesignated to attainment unless an acceptable modeling analysis
3 indicates attainment.

4
5 Though none of Utah's three PM₁₀ nonattainment areas was designated based on modeling, it is
6 still worth pointing out that an air quality modeling analysis was conducted for the purpose of this
7 maintenance demonstration. It shows that all three nonattainment areas [are presently in
8 compliance, and]will continue to comply with the PM₁₀ NAAQS through the year 2017.
9

10 **(d) EPA Acknowledgement**

11
12 The data presented in the preceding paragraphs show quite clearly that each of Utah's three PM₁₀
13 nonattainment areas has attained the NAAQS. As discussed before, the EPA acknowledged as
14 much in the Federal Register for both Utah County and Salt Lake County.

15
16 On June 18, 2001, EPA published notice in the Federal Register (66 FR 32752) that Utah's
17 extension requests were granted, that Salt Lake County attained the PM₁₀ standard by December
18 31, 1995, and that Utah County attained the standard by December 31, 1996. The notice stated
19 that these areas remain moderate nonattainment areas and are not subject to the additional
20 requirements of serious nonattainment areas.

21
22 A similar acknowledgement was to have been made for Ogden City by June 30, 2002.
23

24 **(2) Fully Approved Attainment Plan for PM₁₀**

25 CAA 107(d)(3)(E)(ii) - *The Administrator has fully approved the applicable implementation plan*
26 *for the area under section 110(k).*

27 On November 14, 1991, Utah submitted a SIP for Salt Lake and Utah Counties that demonstrated
28 attainment for Salt Lake and Utah Counties for 10 years, 1993 through 2003. EPA published
29 approval of the SIP on July 8, 1994 (59 FR 35036).

30 On July 3, 2002, Utah submitted a PM₁₀ SIP revision for Utah County. It revised the existing
31 attainment demonstration in the approved PM₁₀ SIP based on a short-term emissions inventory,
32 established 24-hour emission limits for the major stationary sources in the Utah County
33 nonattainment area, and established motor vehicle emission budgets based on EPA's most recent
34 mobile source emissions model, MOBILE6. It demonstrated attainment in the Utah County
35 nonattainment area through 2003. The revised attainment demonstration extended through the
36 year 2003. EPA published approval of this SIP revision on December 23, 2002 (67 FR 78181).
37 It became effective on January 22, 2003.

38 As discussed in the IX.A.10.a[(4)][(1)(iv)] above, there is no approved SIP for Ogden City.
39 Nevertheless, at the time of this writing, it is anticipated that the planning requirements under Part
40 D of the CAA will be found by EPA to have been satisfied via its PM₁₀ Clean Data Areas
41 Approach (October 18, 1999).

42 **(3) Improvements in Air Quality Due to Reductions in Emissions**

43
44 CAA 107(d)(3)(E)(iii) - *The Administrator determines that the improvement in air quality is due*
45 *to permanent and enforceable reductions in emissions resulting from implementation of the*

applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions. Speaking further on the issue, EPA guidance (Calcagni) reads that the State must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable. In the following sections, both the improvement in air quality and the emission reductions themselves will be discussed.

(a) Improvement in Air Quality

The improvement in air quality with respect to PM₁₀ can be shown in a number of ways. Improvement, in this case, is relative to the various control strategies that affected the airshed.

For both the Salt Lake and Utah County nonattainment areas, these control measures were implemented as the result of the nonattainment PM₁₀ SIPs promulgated in 1991. As discussed below, the actual implementation of the control strategies required therein first exhibits itself in the observable data in 1994. The ambient air quality data presented below includes values prior to 1994 in order to give a representation of the air quality prior to the application of any control measures. It then includes data collected from then until the present time to illustrate the effect of these controls. In considering the data presented below, it is important to keep this distinction in mind: data through 1993 represents pre-SIP conditions, and data collected from 1994 through the present represents post-SIP conditions.

In the case of Ogden City, there were a number of control measures incorporated into the Utah SIP on either a state-wide basis or as applicable to nonattainment areas in general. As discussed in Subsection IX.A.10.a(1) above, these measures were at least partly responsible for bringing the area into compliance with the PM₁₀ NAAQS. The introduction of these measures (open burning rule, visible emissions rule, fugitive dust rule, and vehicle I/M) was not so abrupt as was the case in the other two nonattainment areas, but Vehicle I/M did begin in 1990 which is relatively coincident with the peak of measured concentrations for the area. Its effectiveness is seen in all subsequent years. ~~It is also worth noting that Ogden City implemented a voluntary woodburning control program beginning late in 1992 when the other PM₁₀ nonattainment areas implemented mandatory woodburning controls.~~

Referring back to the discussion of the PM₁₀ NAAQS in Subsection IX.A.10.b(1), it is apparent that the number of expected exceedances of the 24-hour standard is an important indicator. As such, this information has been tabulated for each of the monitors located in each of the nonattainment areas. The data in [Tables IX.A.33 - 35][Table IX.A.33] below reveal[s] a marked decline in the number of these expected exceedances. This decline is especially revealing in light of the significant growth experienced during this same period in time.

Also indicative of improvement in air quality with respect to the 24-hour standard, is the magnitude of the excessive concentrations that are observed. This is illustrated, for each nonattainment area, in charts showing the three highest 24-hour concentrations observed in a particular year. (Salt Lake County data is in Figures IX.A.24-27, Utah County data is in Figures IX.A.32-34, and Ogden data is in Figure IX.A.38.) Again there is a noticeable improvement in the magnitude of these concentrations. It must be kept in mind, however, that some of these concentrations may have resulted from windblown dust events that occur outside of the typical scenario of wintertime air stagnation. As such, any control measures directed at the precursors to PM₁₀ would not be evident.

In considering the annual PM₁₀ standard, the value of the annual arithmetic mean is clearly the most significant parameter to consider. Annual arithmetic means have been plotted for each of

the nonattainment areas. (Salt Lake County data is in Figures IX.A.28-31, Utah County data is in Figures IX.A.35-37, and Ogden data is in Figure 39.)

The annual data reveals a noticeable decline in the values of these annual means. This is especially significant in light of one of the assumptions made in the original nonattainment SIPs for Salt Lake and Utah Counties. Based on EPA guidance which states that “The SIP related emission limits should be based on the NAAQS (annual or 24-hour) which result in the most stringent control requirements” these SIPs were developed to address the 24-hour standard for PM₁₀. It was assumed then, that by controlling for the wintertime 24-hour standard, the annual arithmetic mean concentrations would also be reduced such that the annual standard would be protected. The data collected between then and now supports the validity of that assumption.

[As discussed before in section IX.A.10.b(1), any data which had been flagged by DAQ and which had not yet been concurred with by EPA was not considered for the purpose of this discussion. Data is flagged when circumstances indicate that it would represent an outlier in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. Nevertheless, some discussion will be provided that indicates what the ramifications of this data would be if it were to have been included in the discussion concerning improvements in air quality due to permanent and enforceable reductions in emissions.]

As illustrated in Tables IX.A.33-35 below, the results of this exercise show that each of the three PM₁₀ nonattainment areas has experienced significant improvements in air quality with respect to PM₁₀. The gray cells indicate that the monitor was not in operation.

[Table IX.A.33 Salt Lake County Expected Exceedances per Year, 1985-2004]

Monitors	AMC	Salt Lake	Hawthorne	Magna	N. Salt Lake	Cottonwood
1985					0	
1986		0			6.5	0
1987		0		2.4	0	0
1988		0		2.2	5.8	0
1989	8.7	0		0	3.3	0
1990	0	0		0	0	0
1991	15.9	8.4		0	13.5	8.4
1992	8.6	0		0	2.1	0
1993	0	0		0	0	0
1994	1	0		0	0	0
1995	0			0	0	0
1996	0			0	2.3	0
1997	0		0	0	0	0
1998	0		0	0	0	0
1999	0		0	0	0	0
2000			0	0	0	0
2001			0	0	0	0
2002			0	0	0	0
2003			0	0	0	0
2004			0	0	0	0

Table IX.A.33 Salt Lake County Expected Exceedances per Year, 1985-2004

Monitors	AMC	Salt Lake	Hawthorne	Magna	N. Salt Lake	Cottonwood
1985					0	
1986		0			6.5	0
1987		0		2.4	0	0
1988		4.6 / 6.7*		2.2	5.8	0
1989	8.7	6.9		0	3.3	0
1990	0	0		0	0	0
1991	15.9	11		0	13.5	8.4
1992	8.6	6.6		0	2.1	0
1993	0	0		0	0	0
1994	1	0		0	0 / 8.6*	0
1995	0			0	0	0
1996	0			0	2.3	0
1997	0		0	0	0	0
1998	0		0	0	0	0
1999	0		0	0	0	0
2000			0	0	0	0
2001			0	0 / 6.4*	0	0
2002			0	0	0	0
2003			0 / 2.1*	0 / 3.1*	0 / 3.1*	0
2004			0	0	0 / 1.0*	0

[The second set of numbers, indicated by the asterisks, shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA. As discussed before such data is not necessarily considered representative of airshed management, and as such two things should be noted: 1) The focus of the control strategy developed for the 1991 PM₁₀ SIP was directed at episodes characterized by wintertime temperature inversions, elevated concentrations of secondary aerosol, and low wind speed. Under these conditions, blowing dust is nonexistent. Therefore, in evaluating the effectiveness of these types of controls, the inclusion of several high wind events may mislead the reader. 2) Even if these events are included in the table, the conclusion remains essentially the same; that since 1994 when the 1991 SIP controls were fully implemented, there has been a marked improvement in monitored air quality.

The data that has been flagged by DAQ, and has not yet been concurred with by EPA includes the following:

At the AMC monitor: there were no such data points.

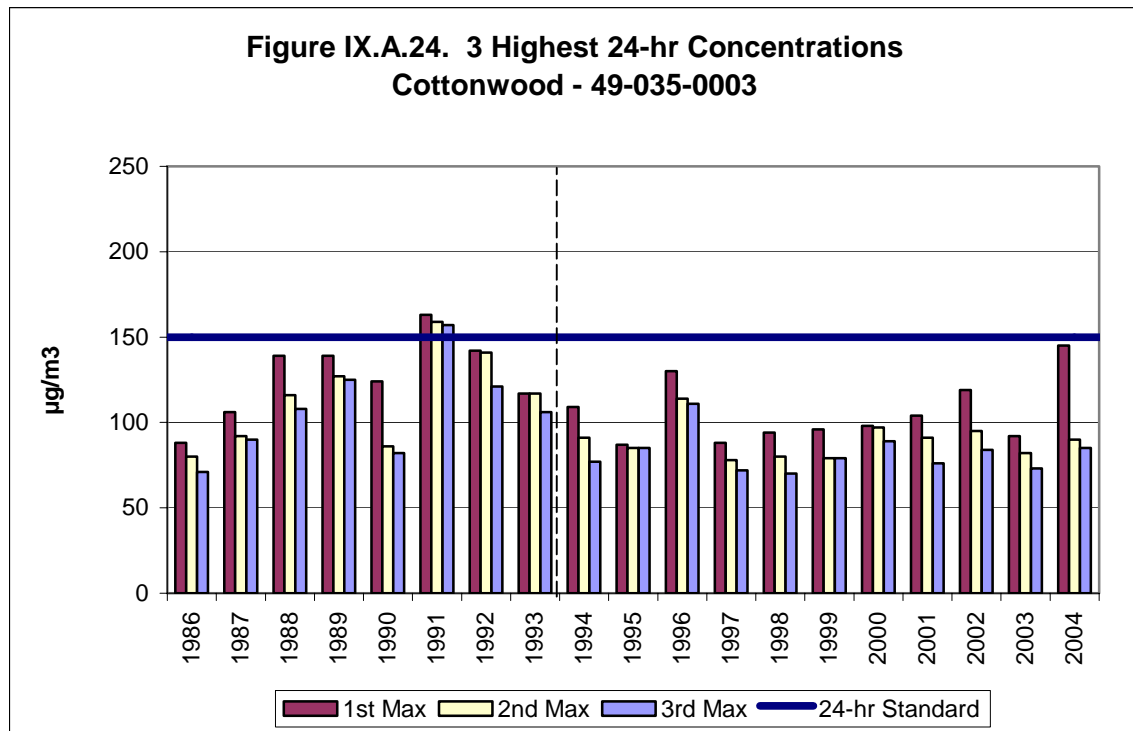
At the Salt Lake City monitor: there was one day in 1988 (205 ug/m³ on Sept.10) that was flagged by DAQ because of a local construction project.

At the Hawthorne monitor: there were two days in 2003 (162 ug/m³ on Feb. 1, and 360 ug/m³ on April 1) that were flagged by DAQ because of high winds.

At the Magna monitor: there were two days in 2001 (201 ug/m³ on March 14, and 156 ug/m³ on April 22), and one day in 2003 (421 ug/m³ on April 1) that were all flagged by DAQ because of high winds.

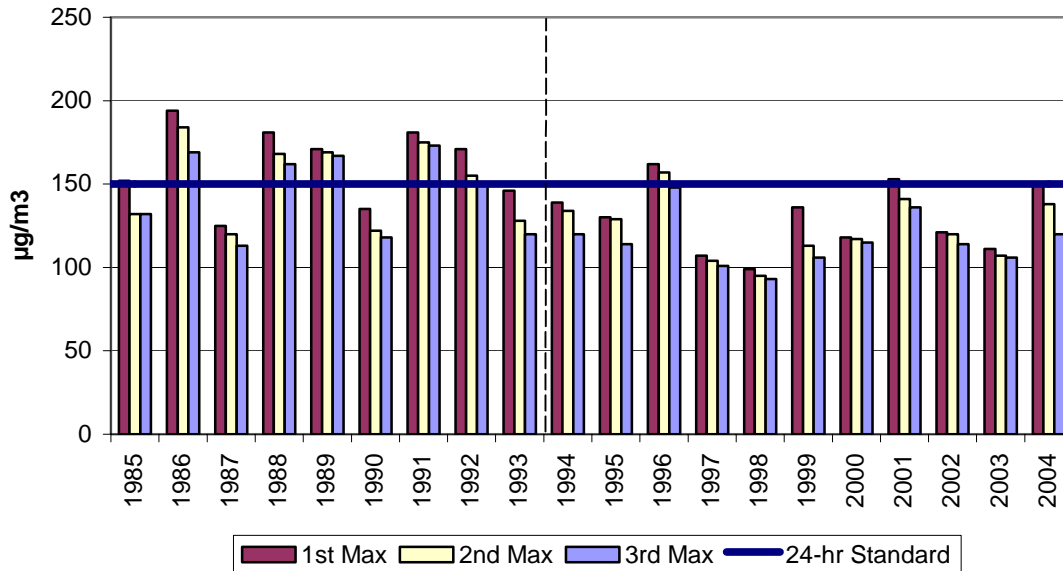
At the North Salt Lake monitor: there were eight days in 1994 (between June and August) that were flagged because of a local construction project. There were also three days in 2003 (169 ug/m³ on Feb. 1, 358 ug/m³ on April 1, and 209 ug/m³ on April 2), and another day in 2004 (189 ug/m³ on May 10) that were all flagged by DAQ because of high winds.

At the Cottonwood monitor: there were no such data points.]



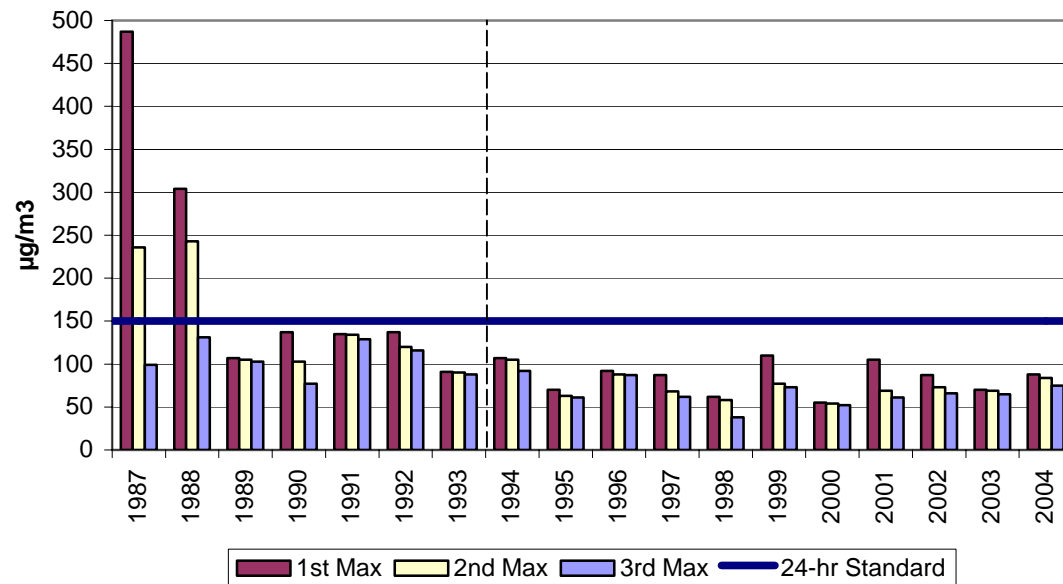
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

**Figure IX.A.25. 3 Highest 24-hr Concentrations
North Salt Lake - 49-035-0012**

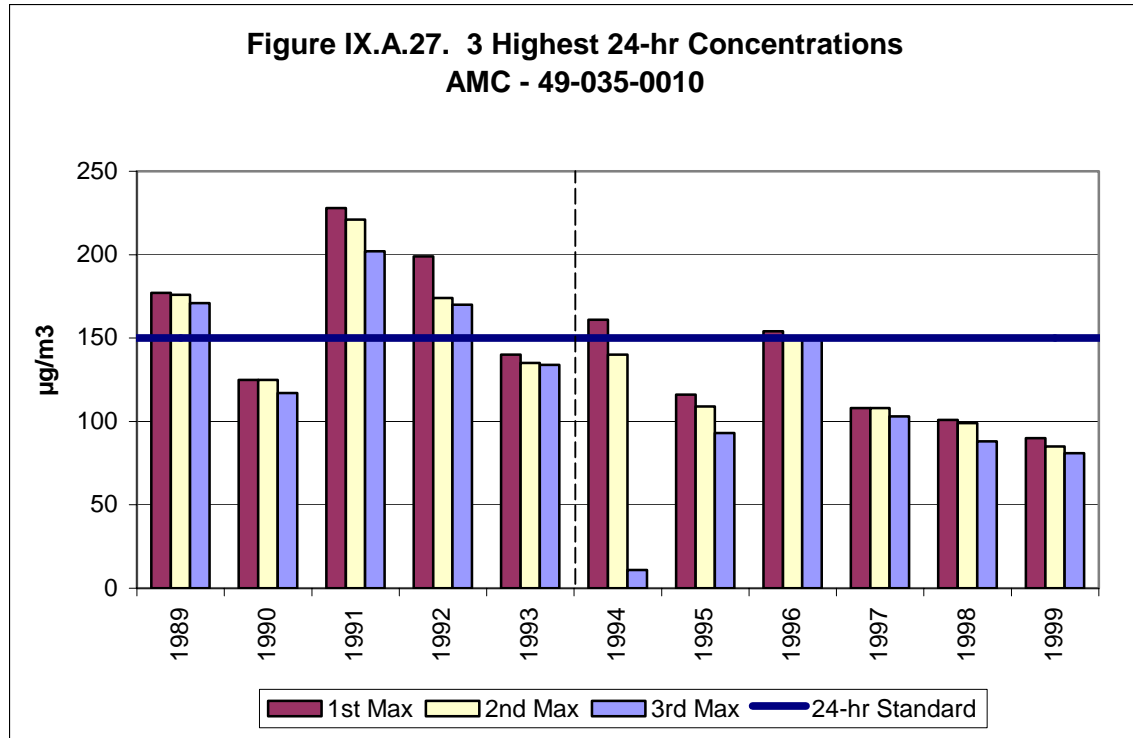


(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

**Figure IX.A.26. 3 Highest 24-hr Concentrations
Magna - 49-035-1001**

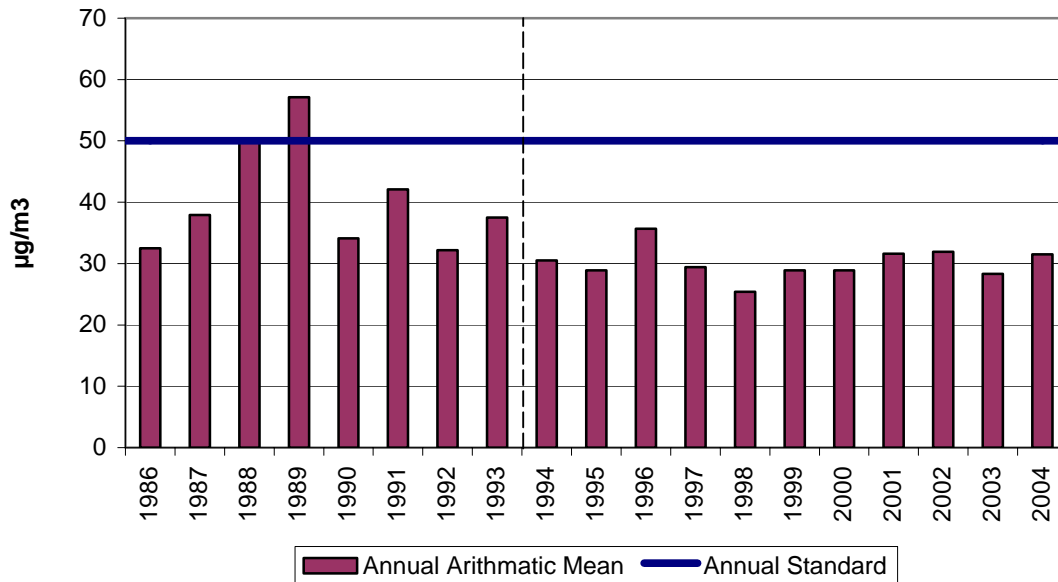


(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)



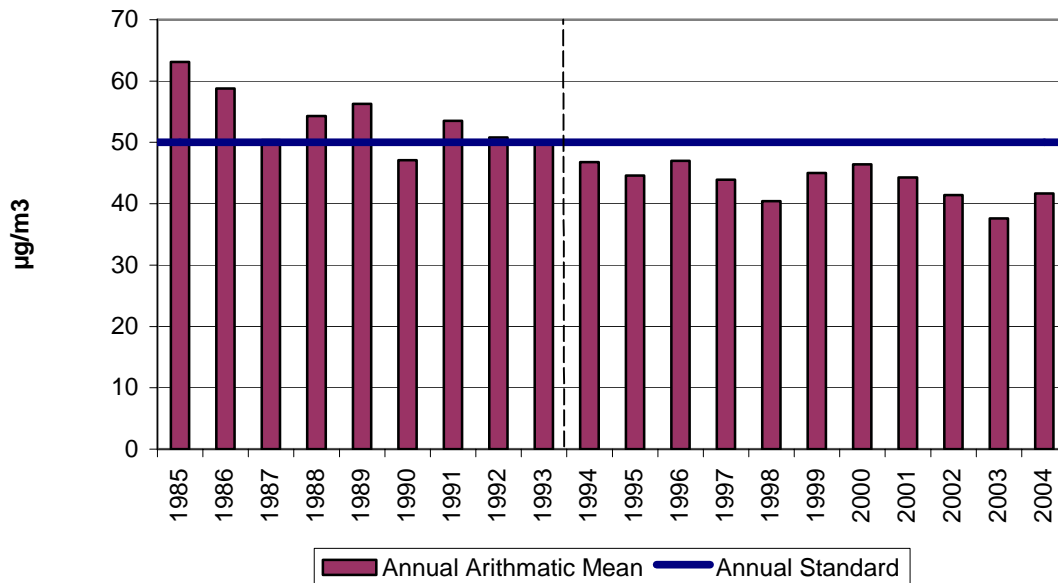
[As discussed before in section IX.A.10.b(1), any data which had been flagged by DAQ and which had not yet been concurred with by EPA was not considered in preparing Figures IX.A.24 – 27. Data is flagged when circumstances indicate that it would represent an outlier in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. The data that was flagged has already been discussed, and the values were provided so that an additional set of Figures is not necessary.]

**Figure IX.A.28. Annual Arithmetic Mean
Cottonwood - 49-035-0003**



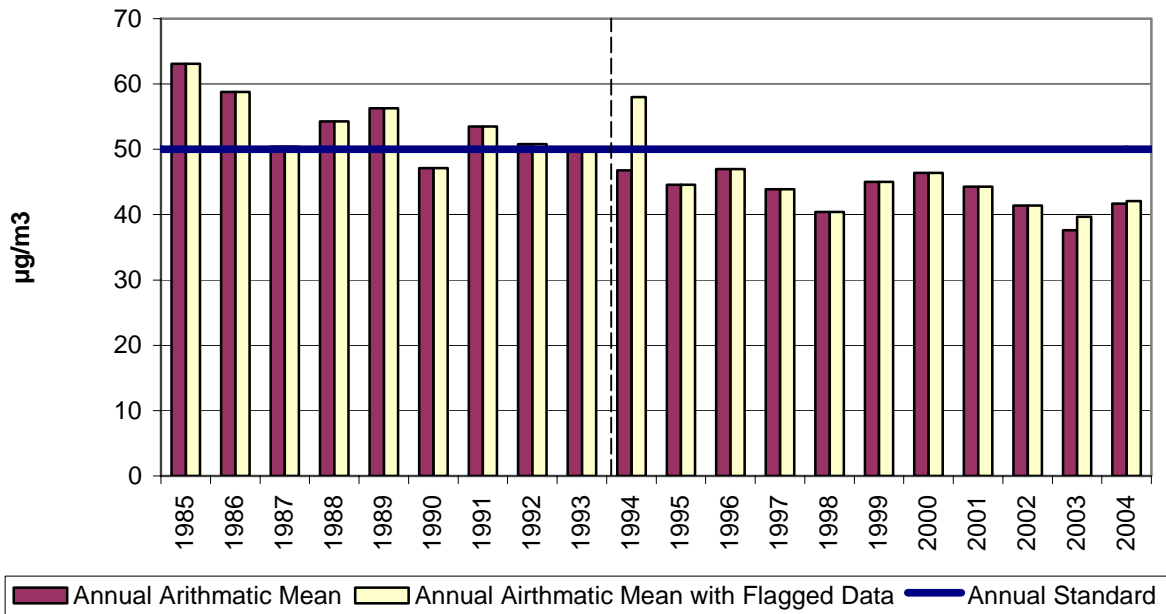
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

**Figure IX.A.29. Annual Arithmetic Mean
North Salt Lake - 49-035-0012**



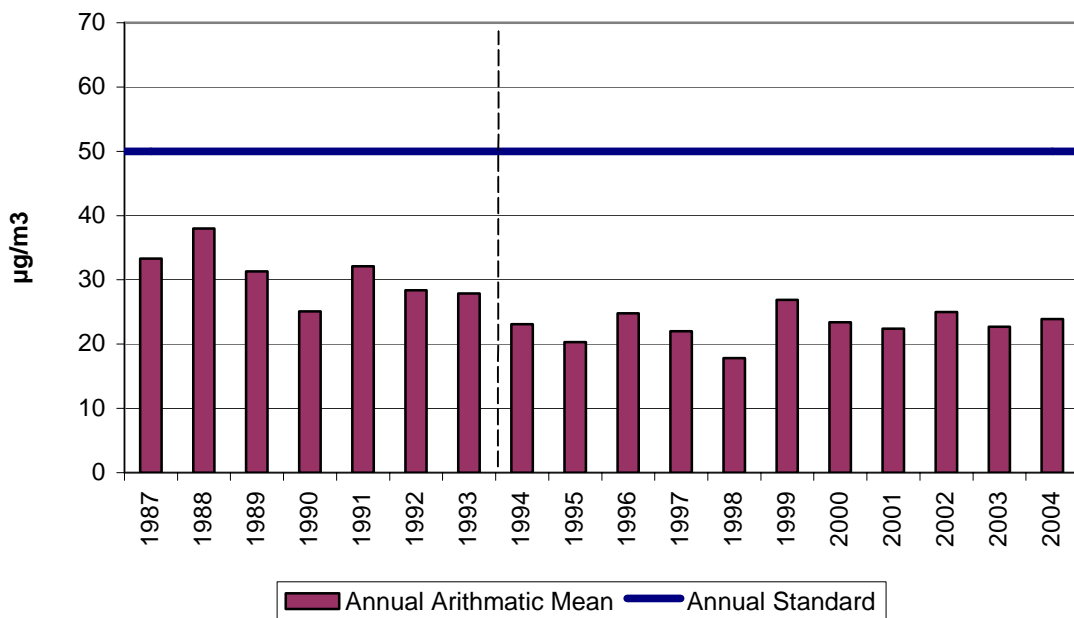
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

**Figure IX.A.29. Annual Arithmetic Mean
North Salt Lake - 49-035-0012**



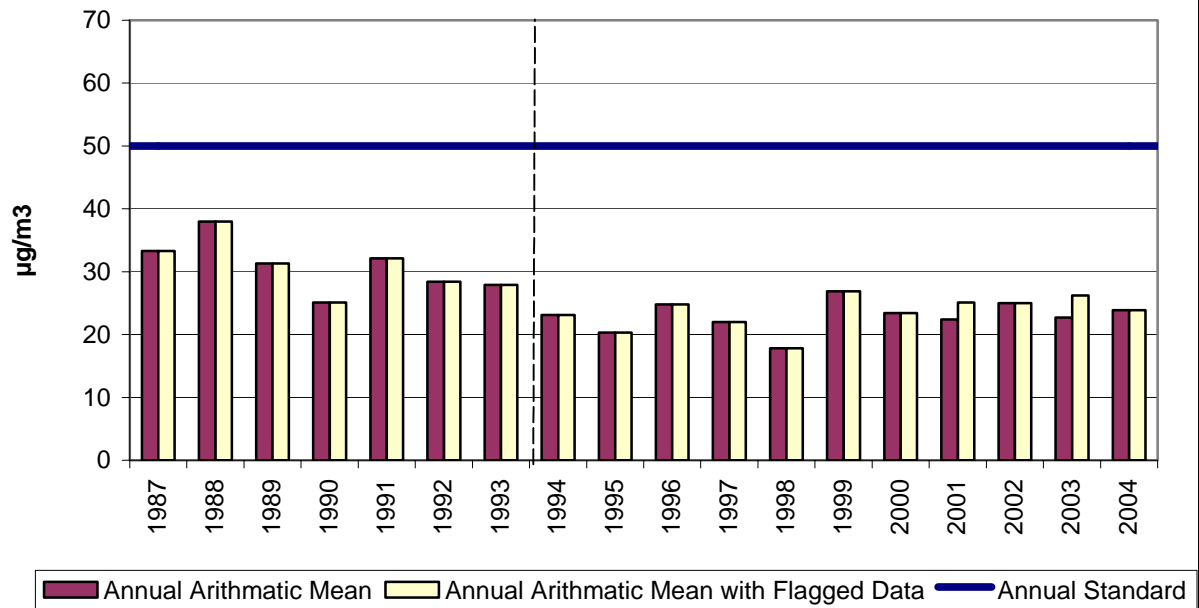
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

**Figure IX.A.30. Annual Arithmetic Mean
Magna - 49-035-1001**



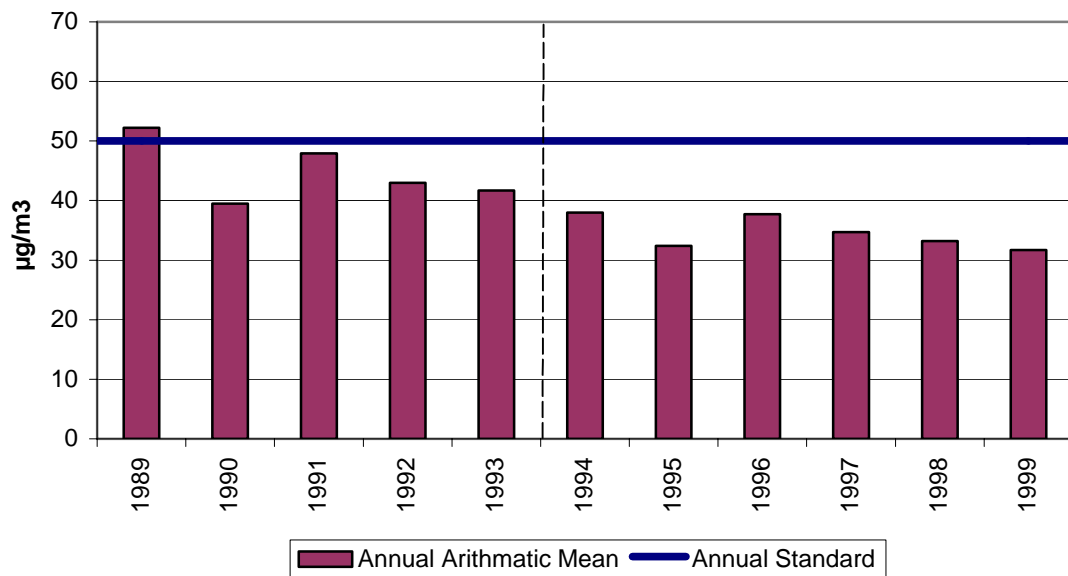
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

**Figure IX.A.30. Annual Arithmetic Mean
Magna - 49-035-1001**



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

**Figure IX.A.31. Annual Arithmetic Mean
AMC - 49-035-0010**



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

[As discussed before in section IX.A.10.b(1), any data which had been flagged by DAQ and which had not yet been concurred with by EPA was generally not considered in preparing the

maintenance plan, and this applies to Figures IX.A.28 – 31. Data is flagged when circumstances indicate that it would represent an outlier in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within.

Nevertheless, when discussing the trend in annual mean concentrations, in the context of permanent and enforceable control measures that were implemented as part of the SIP, this data may have some relevance. As mentioned above, the focus of the control strategy developed for the 1991 PM₁₀ SIP was directed at episodes characterized by wintertime temperature inversions, elevated concentrations of secondary aerosol, and low wind speed. Under these conditions, blowing dust is nonexistent. This type of episode is also seasonal in nature, and thus primarily affects compliance with the 24-hr standard for PM₁₀. It was assumed in the 1991 PM₁₀ SIP that the controls directed at these peak wintertime concentrations would be sufficient to control for the annual PM₁₀ standard as well. Since elevated concentrations of PM₁₀ outside of the wintertime season (November through February) are generally of a different character, and instead involve blowing dust or perhaps smoke from forest fires, it may be of interest to include data from high wind events, even if the intensity of the wind is such that it would constitute a natural event and thus be a candidate for a data flag.

To that end Figures IX.A.28 – 31 also indicate what the annual arithmetic mean PM₁₀ concentrations would be if this flagged data were to eventually be “not concurred with” by EPA. In either case, it must be concluded that the controls put in place from the 1991 PM₁₀ SIP have resulted in an improvement in air quality, and are sufficient to protect the annual PM₁₀ health standard.]

[Table IX.A.34 Utah County Expected Exceedances per Year, 1985–2004]

Monitors	Lindon	North Provo	West Orem
1985	8.7		
1986	9.1	14	
1987	0	0	
1988	15.9	2	4.4
1989	22.2	8	17.8
1990	0	0	0
1991	11.7	7.3	13.9
1992	5.3	3.1	5.2
1993	5.2	4.1	3.1
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0

Table IX.A.34 Utah County Expected Exceedances per Year, 1985-2004

Monitors	Lindon	North Provo	West Orem
1985	8.7		
1986	9.1	14	
1987	0	0	
1988	15.9	2	4.4
1989	22.2	8	17.8
1990	0	0	0
1991	11.7	7.3	13.9
1992	5.3	3.1	5.2
1993	5.2	4.1	3.1
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0 / 1.0*	0	0
2003	0	0	0
2004	0 / 1.0*	0	0

[The second set of numbers, indicated by the asterisks, shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA. As discussed before such data is not necessarily considered representative of airshed management, and as such two things should be noted: 1) The focus of the control strategy developed for the 1991 PM₁₀ SIP was directed at episodes characterized by wintertime temperature inversions, elevated concentrations of secondary aerosol, and low wind speed. Under these conditions, blowing dust is nonexistent. Therefore, in evaluating the effectiveness of these types of controls, the inclusion of a high wind event may mislead the reader. 2) Even if this event is included in the table, the conclusion remains the same; that since 1994 when the 1991 SIP controls were fully implemented, there has been a marked improvement in monitored air quality.

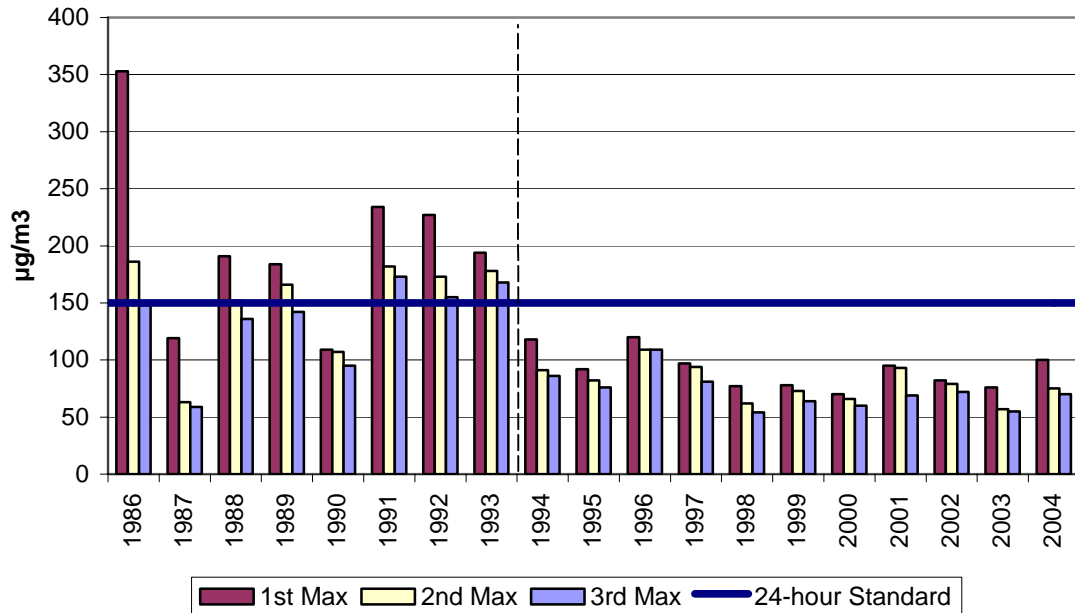
The data that has been flagged by DAQ, and has not yet been concurred with by EPA includes the following:

At the Lindon monitor - there was one day in 2002 (288 ug/m³ on April 15), and another day in 2004 (159 ug/m³ on May 10) that were both flagged by DAQ because of high winds.

At the North Provo monitor - there were no such data points.

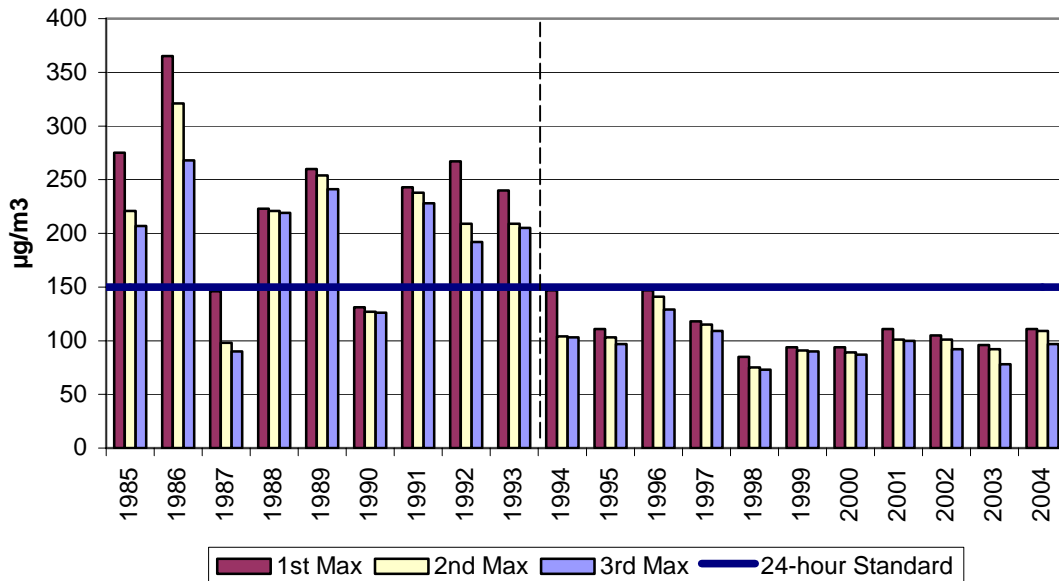
At the West Orem monitor - there were no such data points.]

**Figure IX.A.32. 3 Highest 24-hr Concentrations
North Provo - 49-049-0001**

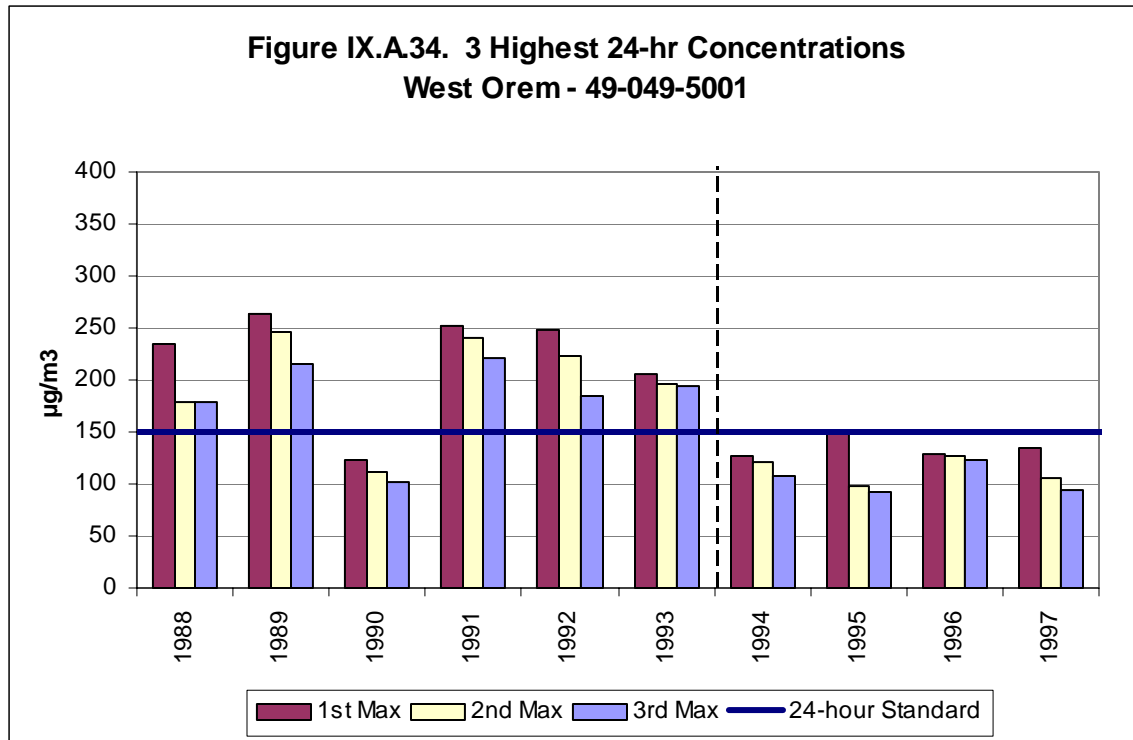


(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

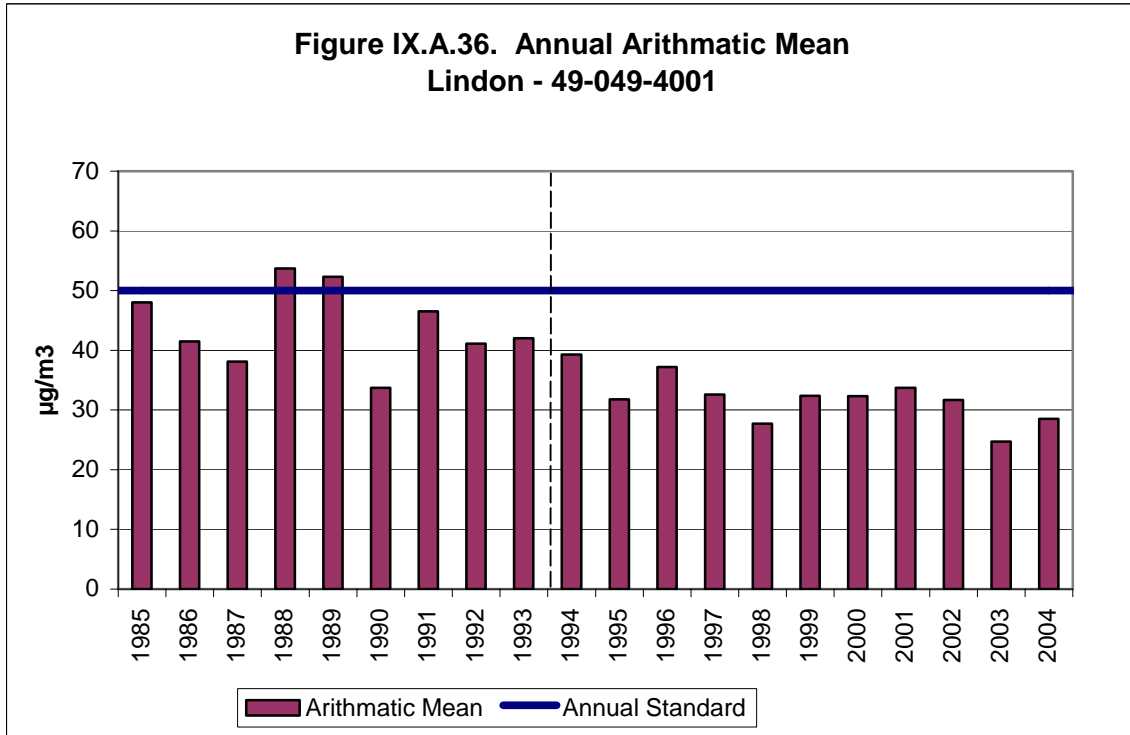
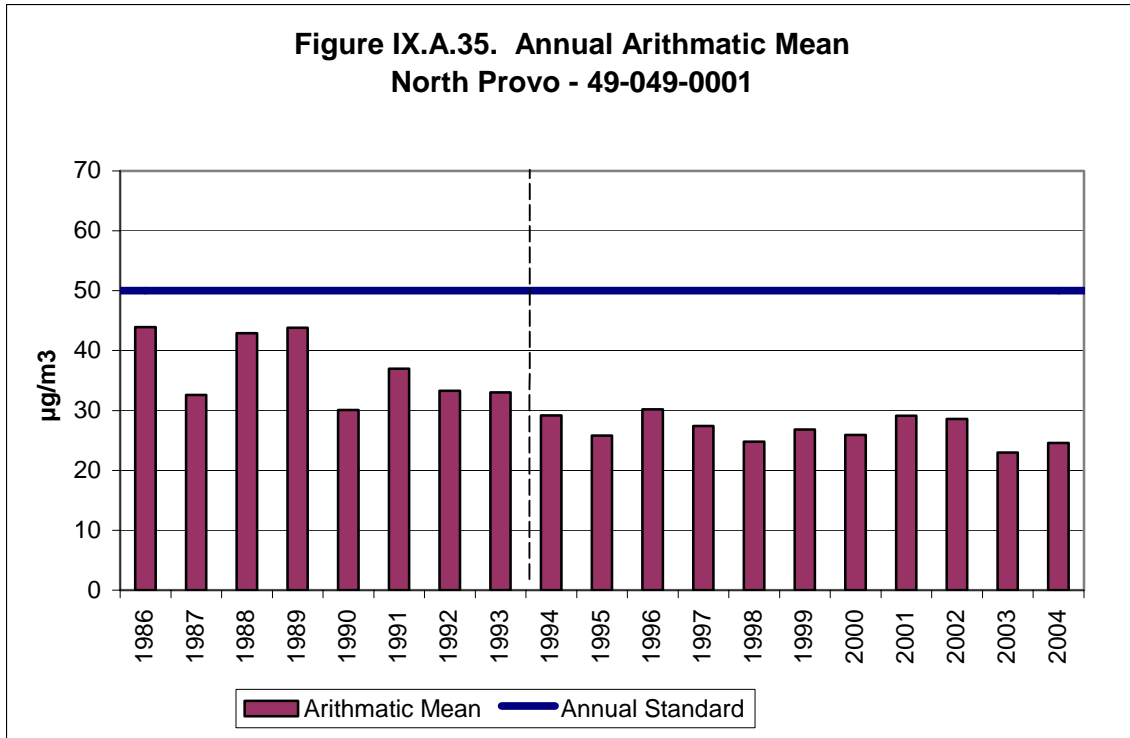
**Figure IX.A.33. 3 Highest 24-hr Concentrations
Lindon - 49-049-4001**



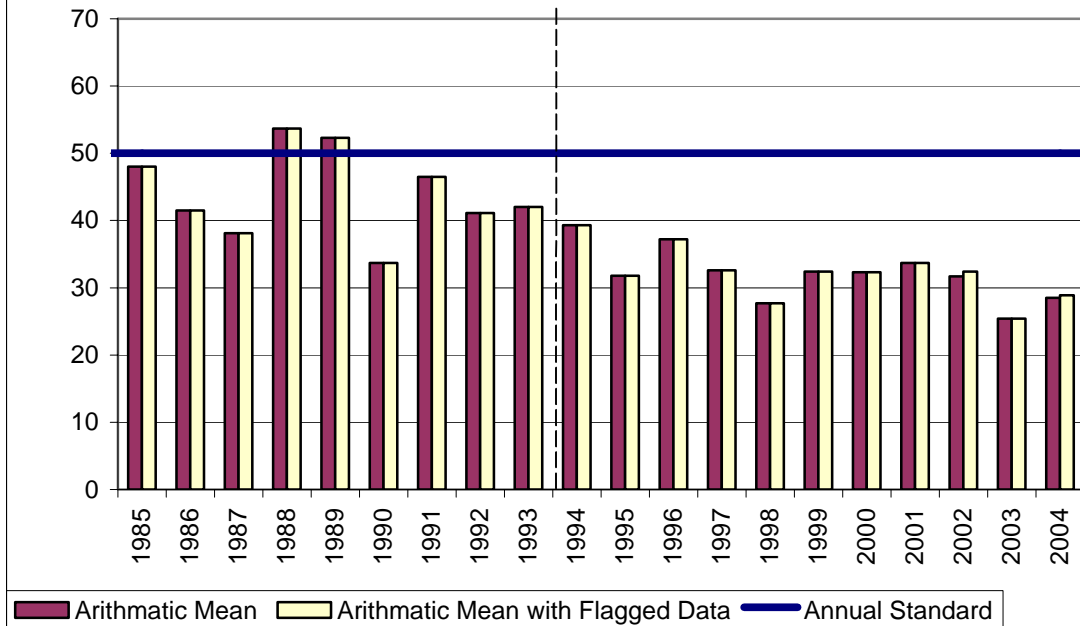
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)



[As discussed before in section IX.A.10.b(1), any data which had been flagged by DAQ and which had not yet been concurred with by EPA was not considered in preparing Figures IX.A.32 – 34. Data is flagged when circumstances indicate that it would represent an outlier in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. The data that was flagged has already been discussed, and the values were provided so that an additional set of Figures is not necessary.]

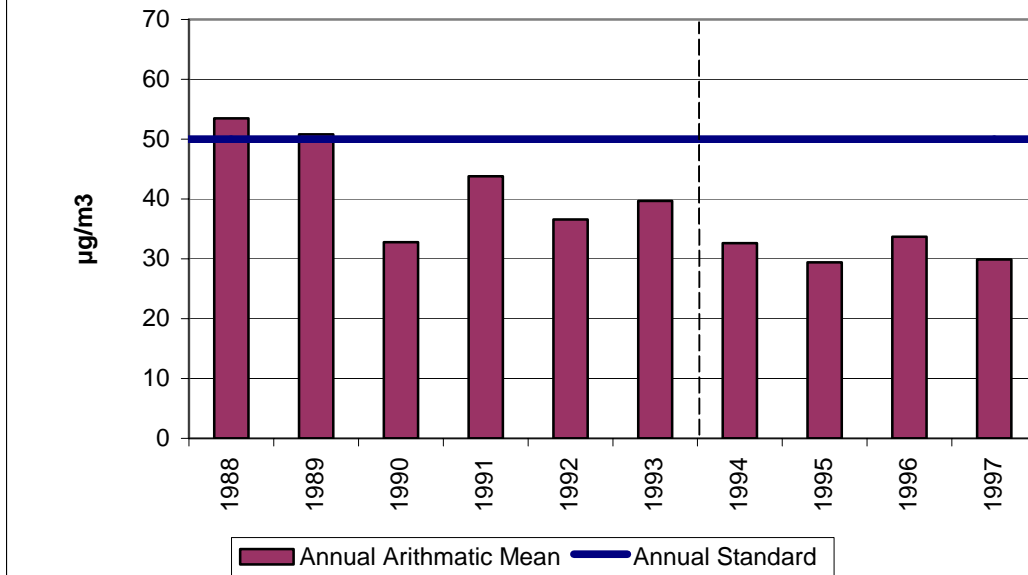


**Figure IX.A.36. Annual Arithmetic Mean
London - 49-049-4001**



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

**Figure IX.A.37. Annual Arithmetic Mean
West Orem - 49-049-5001**



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

[As discussed before in section IX.A.10.b(1), any data which had been flagged by DAQ and which had not yet been concurred with by EPA was generally not considered in preparing the

1 maintenance plan, and this applies to Figures IX.A.35 – 37. Data is flagged when circumstances
 2 indicate that it would represent an outlier in the data set and not be indicative of the entire airshed
 3 or the efforts to reasonably mitigate air pollution within.

4
 5 Nevertheless, when discussing the trend in annual mean concentrations, in the context of
 6 permanent and enforceable control measures that were implemented as part of the SIP, this data
 7 may have some relevance. As mentioned above, the focus of the control strategy developed for
 8 the 1991 PM₁₀ SIP was directed at episodes characterized by wintertime temperature inversions,
 9 elevated concentrations of secondary aerosol, and low wind speed. Under these conditions,
 10 blowing dust is nonexistent. This type of episode is also seasonal in nature, and thus primarily
 11 affects compliance with the 24-hr standard for PM₁₀. It was assumed in the 1991 PM₁₀ SIP that
 12 the controls directed at these peak wintertime concentrations would be sufficient to control for the
 13 annual PM₁₀ standard as well. Since elevated concentrations of PM₁₀ outside of the wintertime
 14 season (November through February) are generally of a different character, and instead involve
 15 blowing dust or perhaps smoke from forest fires, it may be of interest to include data from high
 16 wind events, even if the intensity of the wind is such that it would constitute a natural event and
 17 thus be a candidate for a data flag.

18
 19 To that end Figures IX.A.35 – 37 also indicate what the annual arithmetic mean PM₁₀
 20 concentrations would be if this flagged data were to eventually be “not concurred with” by EPA.
 21 In either case, it must be concluded that the controls put in place from the 1991 PM₁₀ SIP have
 22 resulted in an improvement in air quality, and are sufficient to protect the annual PM₁₀ health
 23 standard.]

24
 25
 26
 27 **[Table IX.A.35 – Ogden City Expected Exceedances per Year, 1985-2004]**
 28

Monitors	Ogden1	Ogden2
1985		
1986	0	
1987	0	
1988	0	
1989	0	
1990	0	
1991	2.1	
1992	2.1	
1993	2.1	
1994	0	
1995	0	
1996	0	
1997	0	
1998	0	
1999	0	
2000	0	
2001		0
2002		0
2003		0
2004		0

Table IX.A.35 Ogden City Expected Exceedances per Year, 1985-2004

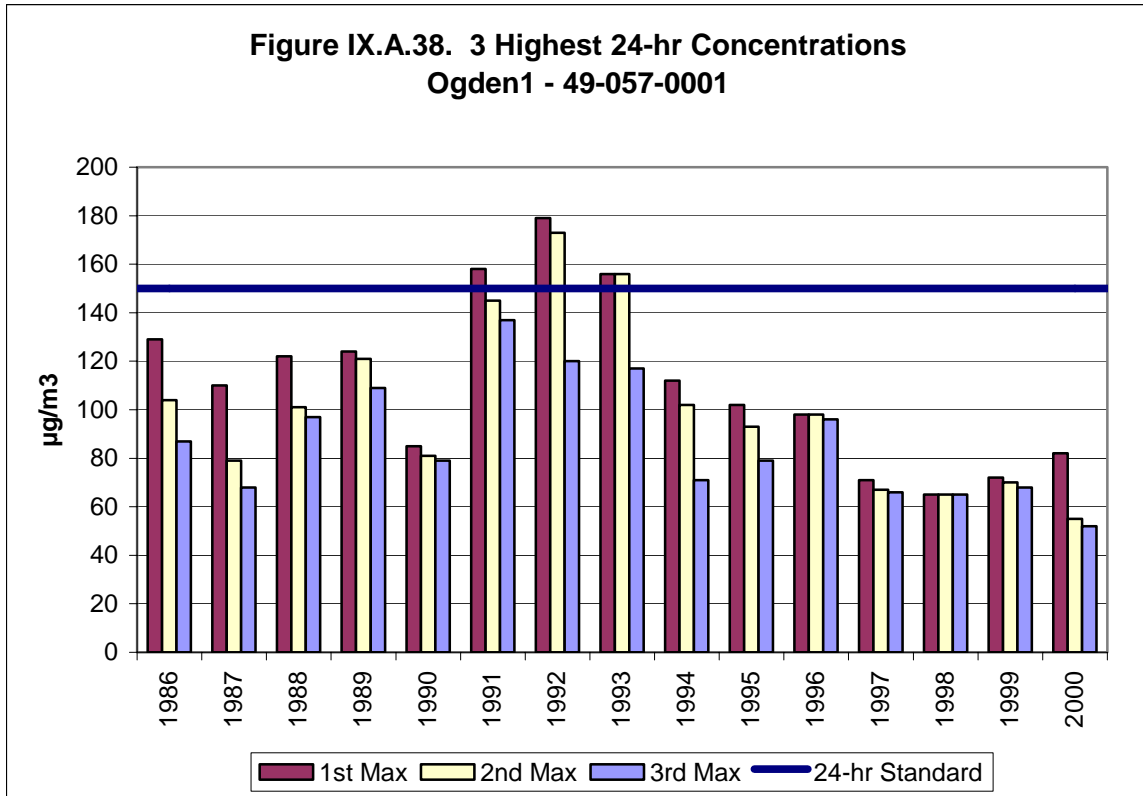
Monitors	Ogden1	Ogden2
1985		
1986	0	
1987	0	
1988	0	
1989	0	
1990	0	
1991	2.1	
1992	2.1	
1993	2.1	
1994	0	
1995	0	
1996	0	
1997	0	
1998	0	
1999	0	
2000	0	
2001		0
2002		1.0
2003		1.0 / 2.0*
2004		0

[The second set of numbers, indicated by the asterisks, shows what would be the effect of including all of the data that has been flagged by DAQ and not yet concurred with by EPA. As discussed before such data is not necessarily considered representative of airshed management, and as such it should be noted that the focus of the control strategies included in the Utah SIP for the Ogden City area did include measures to control fugitive dust, it was most certainly not directed at neighborhood fireworks displays. Therefore, in the context of evaluating the effectiveness of these controls, the inclusion of several fireworks events will absolutely mislead the reader. Taken with the fact that the site of PM₁₀ monitoring in Ogden City was moved to this particular neighborhood in 2001, the inclusion of this data is not appropriate for the analysis of long term trends of ambient air quality representing Ogden City at large.]

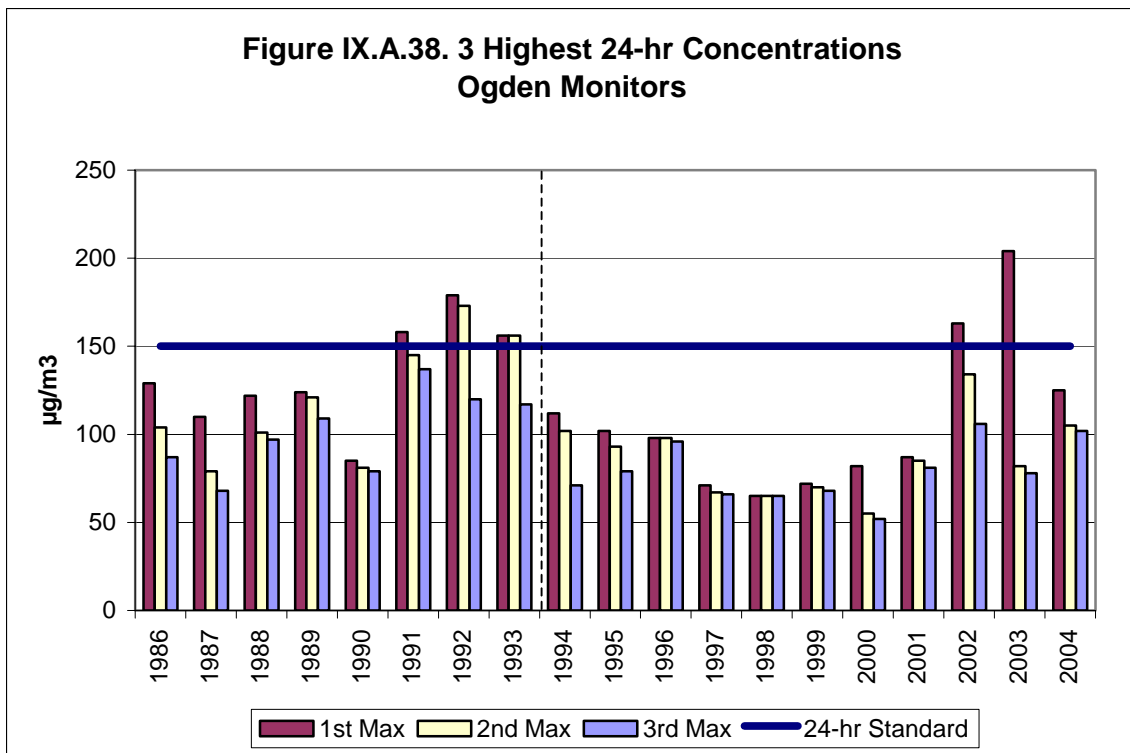
The data that has been flagged by DAQ, and has not or not yet been concurred with by EPA includes the following:

At the Ogden2 monitor - there was one day in 2003 (229 ug/m³ on April 1) that was flagged by DAQ because of high winds, and two other exceedances that were flagged on the 4th of July; one in 2002 (163 ug/m³) and the other in 2003 (204 ug/m³). EPA did not concur with the flags on the 4th of July (for either 2002 or 2003).]

1 [



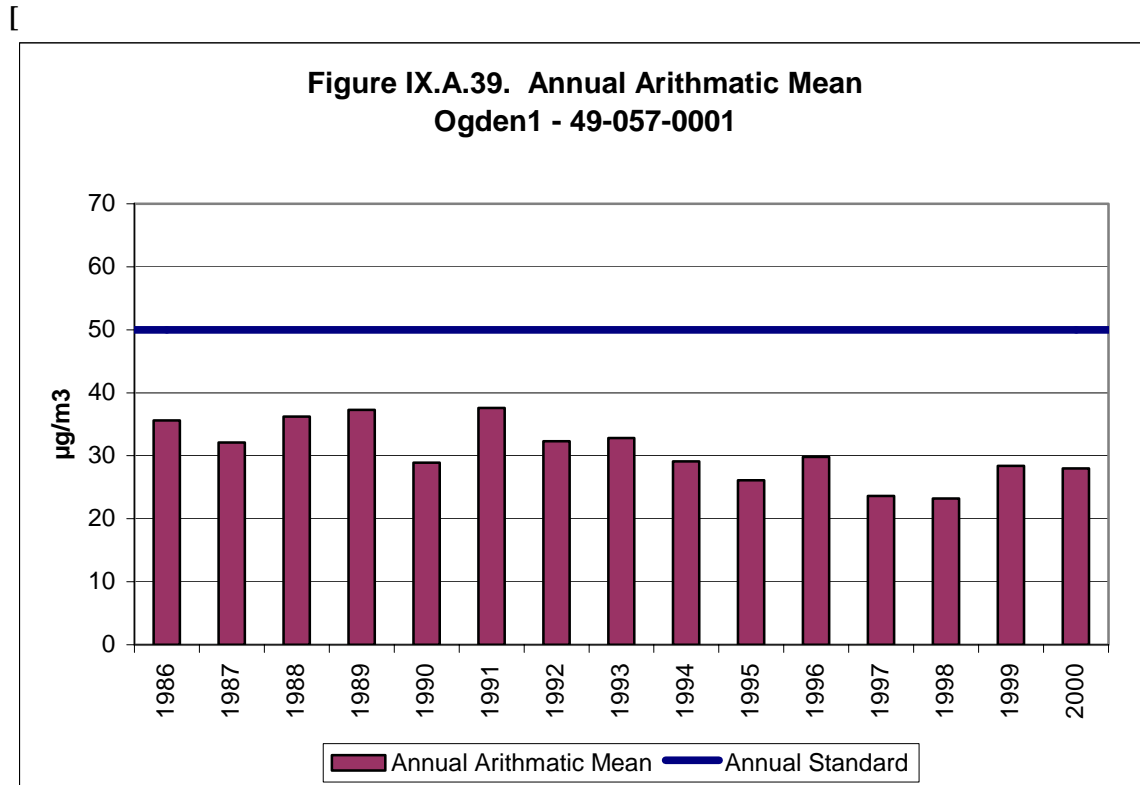
2
3
4]



5
6
7

(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

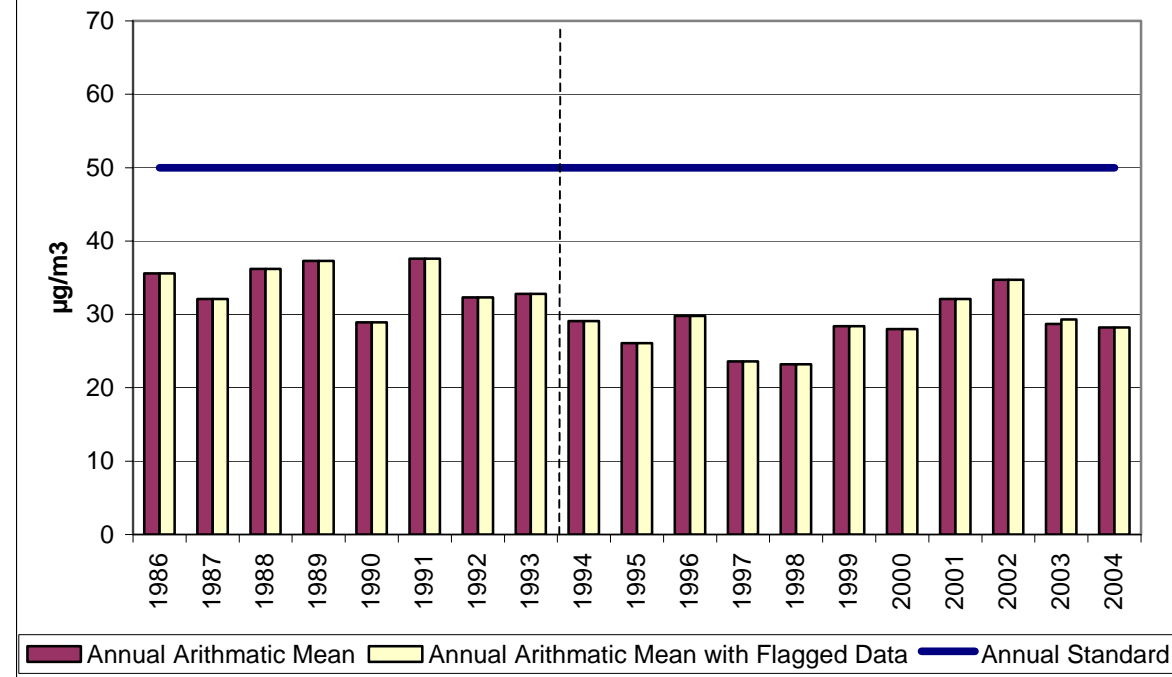
[Note that the location of the Ogden monitor changed in 2001. Also, as discussed before in section IX.A.10.b(1), any data which had been flagged by DAQ and which had not yet been concurred with by EPA was not considered in preparing Figure IX.A.38. Data is flagged when circumstances indicate that it would represent an outlier in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. The data that was flagged has already been discussed, and the values were provided so that an additional Figure is not necessary.]



(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Figure IX.A.39. Annual Arithmetic Mean, Ogden Monitors.

**Figure IX.A.38. Annual Arithmetic Mean
Ogden Monitors**



2000 and 2001 reflect only part-year data. See Subsection IX.A.10.a for explanation.
(Vertical dotted line indicates complete implementation of 1991 SIP control measures.)

Note that the location of the Ogden monitor changed in 2001. Also, as discussed before in section IX.A.10.b(1), any data which had been flagged by DAQ and which had not yet been concurred with by EPA was generally not considered in preparing the maintenance plan. Data is flagged when circumstances indicate that it would represent an outlier in the data set and not be indicative of the entire airshed or the efforts to reasonably mitigate air pollution within. Nonetheless, Figure IX.A.39 also indicates what the annual arithmetic mean PM₁₀ concentration would be if the flagged event from 2003 were to eventually be “not concurred with” by EPA. Inclusion of the flagged data has no discernable effect on the trend shown by the figure.

(b) Reduction in Emissions

As stated above, EPA guidance (Calcagni) says that the State must be able to reasonably attribute the improvement in air quality to emission reductions that are permanent and enforceable. In making this showing, the State should estimate the percent reduction (from the year that was used to determine the design value) achieved by Federal measures such as motor vehicle control, as well as by control measures that have been adopted and implemented by the State.

In both Salt Lake County and Utah County, the design values at each of the representative monitors were measured in 1988 or 1989 (see SIP Subsections IX.A.3-5).

Ogden City was designated nonattainment based on data collected in 1991 through 1993.

As mentioned before, the ambient air quality data presented in Subsection IX.A.10.b(3)(a) above includes values prior to these dates in order to give a representation of the air quality prior to the application of any control measures. It then includes data collected from then until the present time to illustrate the lasting effect of these controls. In discussing the effect of the controls, as well as the control measures themselves, however, it is important to keep in mind the time necessary for their implementation.

(i) Salt Lake County

The nonattainment SIPs for all initial moderate PM₁₀ nonattainment areas included a statutory date for the implementation of reasonably available control measures (RACM). This date was December 10, 1993 (Section 189(a) CAA). Thus, 1994 marked the first year in which these control measures were reflected in the emissions inventories for Salt Lake County.

The nonattainment SIP for the Salt Lake County PM₁₀ nonattainment area included control strategies for stationary sources and area sources (including controls for woodburning, mobile sources, and road salting and sanding) of primary PM₁₀ emissions as well as sulfur oxide (SO_x) and nitrogen oxide (NO_x) emissions, which are secondary sources of particulate emissions. This is discussed in SIP Subsection IX.A.6, and was reflected in the attainment demonstration presented in Subsection IX.A.5.

The RACM control measures prescribed by the nonattainment SIP and their subsequent implementation by the State were discussed in more detail in a milestone report submitted for the area.

Section 189(c) of the CAA identifies, as a required plan element, quantitative milestones which are to be achieved every 3 years, and which demonstrate reasonable further progress (RFP) toward attainment of the standard by the applicable date. As defined in CAA Section 171(1), the term *reasonable further progress* has the meaning of such annual incremental reductions in emissions of the relevant air pollutant as are required by Part D of the Act for the purpose of ensuring attainment of the NAAQS by the applicable date.

Hence, the milestone report must demonstrate that all measures in the approved nonattainment SIP have been implemented and that the milestone has been met. In the case of initial moderate areas for PM₁₀, this first milestone had the meaning of all control measures identified in the plan being sufficient to bring the area into compliance with the NAAQS by the statutory attainment date of December 31, 1994.

Section 188(d) of the Act allows States to petition the Administrator for up to two one-year extensions of the attainment date, provided that all SIP elements have been implemented and that the ambient data collected in the area during the year preceding the extension year indicates that the area is on-target to attain the NAAQS. Presumably this is because the statutory attainment date for initial moderate PM₁₀ nonattainment areas occurred only one year after the statutory implementation date for RACM, the central control element of all implementation plans for such areas, and because three consecutive years of clean ambient data are needed to determine that an area has attained the standard. Because the milestone report and the request for extension of the attainment date both required a demonstration that all SIP elements had been implemented, as well as a showing of RFP, Utah combined these into a single analysis.

Utah's actions to meet these requirements and EPA's subsequent review thereof are discussed in a Federal Register notice from Monday, June 18, 2001 (66 FR 32752). In this notice, EPA granted a one-year extension of the attainment date for the Salt Lake County PM₁₀ nonattainment area and determined that the area had attained the PM₁₀ NAAQS by December 31, 1995. The key elements of that FR notice are reiterated below.

On May 11, 1995, Utah submitted a milestone report as required by sec.189(c)(2). On Sept.29, 1995, Utah submitted a revised version of the milestone report. It estimated current emissions from all source categories covered by the SIP and compared those to actual emissions from 1988. Based on information the State submitted in 1995 EPA believes that Utah was in substantial

1 compliance with the requirements and commitments in the SIP for the Salt Lake County PM₁₀
2 nonattainment area. The milestone report indicates that Utah had implemented most of its
3 adopted control measures and had, therefore, substantially implemented the RACM/RACT
4 requirements applicable to moderate PM₁₀ nonattainment areas. It showed that in Salt Lake
5 County, emissions of PM₁₀, SO₂ and NO_x had been reduced by approximately 60,752 tpy (from
6 150,292 down to 89,540). The effect of these emission reductions appears to be reflected in
7 ambient measurements at the monitoring site [and] is evidence that the State's implementation of
8 the PM₁₀ SIP control measures resulted in emission reductions amounting to RFP in the Salt Lake
9 County PM₁₀ nonattainment area.

10
11 This Federal Register notice (66 FR 32752) and the milestone report from September 29, 1995
12 have been included in the TSD.

13
14 Furthermore, since these control measures are incorporated into the Utah SIP, the emission
15 reductions that resulted are consistent with the notion of permanent and enforceable
16 improvements in air quality. Taken together, the trends in ambient air quality illustrated in the
17 preceding paragraph, along with the continued implementation of the nonattainment SIP for the
18 Salt Lake County nonattainment area, provide a reliable indication that these improvements in air
19 quality reflect the application of permanent steps to improve the air quality in the region, rather
20 than just temporary economic or meteorological changes.

21
22 **(ii) Utah County**

23
24 The nonattainment SIPs for all initial moderate PM₁₀ nonattainment areas included a statutory
25 date for the implementation of reasonably available control measures (RACM). This date was
26 December 10, 1993 (Section 189(a) CAA). Thus, 1994 marked the first year in which these
27 control measures were reflected in the emissions inventories for Utah County.

28
29 The nonattainment SIP for the Utah County PM₁₀ nonattainment area included control strategies
30 for stationary sources and area sources (including controls for woodburning, mobile sources, and
31 road salting and sanding) of primary PM₁₀ emissions as well as sulfur oxide (SO_x) and nitrogen
32 oxide (NO_x) emissions, which are secondary sources of particulate emissions. This is discussed
33 in SIP Subsection IX.A.6, and was reflected in the attainment demonstration presented in Section
34 IX.A.3.

35
36 The RACM control measures prescribed by the nonattainment SIP and their subsequent
37 implementation by the State were discussed in more detail in a milestone report submitted for the
38 area.

39
40 Section 189(c) of the CAA identifies, as a required plan element, quantitative milestones which
41 are to be achieved every 3 years, and which demonstrate reasonable further progress (RFP)
42 toward attainment of the standard by the applicable date. As defined in CAA Section 171(1), the
43 term reasonable further progress has the meaning of such annual incremental reductions in
44 emissions of the relevant air pollutant as are required by Part D of the Act for the purpose of
45 ensuring attainment of the NAAQS by the applicable date.

46
47 Hence, the milestone report must demonstrate that all measures in the approved nonattainment
48 SIP have been implemented and that the milestone has been met. In the case of initial moderate
49 areas for PM₁₀, this first milestone had the meaning of all control measures identified in the plan
50 being sufficient to bring the area into compliance with the NAAQS by the statutory attainment
51 date of December 31, 1994.

Section 188(d) of the Act allows States to petition the Administrator for up to two one-year extensions of the attainment date, provided that all SIP elements have been implemented and that the ambient data collected in the area during the year preceding the extension year indicates that the area is on-target to attain the NAAQS. Presumably this is because the statutory attainment date for initial moderate PM₁₀ nonattainment areas occurred only one year after the statutory implementation date for RACM, the central control element of all implementation plans for such areas, and because three consecutive years of clean ambient data are needed to determine that an area has attained the standard. Because the milestone report and the request for extension of the attainment date both required a demonstration that all SIP elements had been implemented, as well as a showing of RFP, Utah combined these into a single analysis.

Utah's actions to meet these requirements, and EPA's subsequent review thereof are discussed in a Federal Register notice from Monday, June 18, 2001 (66 FR 32752). In this notice, EPA granted two one-year extensions of the attainment date for the Utah County PM₁₀ nonattainment area and determined that the area had attained the PM₁₀ NAAQS by December 31, 1996. The key elements of that FR notice are reiterated below.

On May 11, 1995, Utah submitted a milestone report as required by sec.189(c)(2). On Sept.29, 1995, Utah submitted a revised version of the milestone report. It estimated current emissions from all source categories covered by the SIP, and compared those to actual emissions from 1988. Based on information the State submitted in 1995 EPA believes that Utah was in substantial compliance with the requirements and commitments in the SIP for the Utah County PM₁₀ nonattainment area when Utah submitted its first extension request. The milestone report indicates that Utah had implemented most of its adopted control measures, and had therefore substantially implemented the RACM/RACT requirements applicable to moderate PM₁₀ nonattainment areas. It showed that in Utah County, emissions of PM₁₀, SO₂ and NO_x had been reduced by approximately 3,129 tpy (from 25,920 down to 22,791). With its March 27, 1996 request for an additional extension year, Utah submitted another milestone report (and revised it again on May 17) which repeated this exercise using more current numbers. The results this time showed that emissions had been reduced by approximately 8,391 tpy. The effect of these emission reductions appears to be reflected in ambient measurements at the monitoring sites [and] this is evidence that the State's implementation of the PM₁₀ SIP control measures resulted in emission reductions amounting to RFP in the Utah County PM₁₀ nonattainment area.

This Federal Register notice (66 FR 32752), the milestone report from September 29, 1995, and the milestone report from May 17, 1996 have all been included in the TSD.

Furthermore, since these control measures are incorporated into the Utah SIP, the emission reductions that resulted are consistent with the notion of permanent and enforceable improvements in air quality. Taken together, the trends in ambient air quality illustrated in the preceding paragraph, along with the continued implementation of the nonattainment SIP for the Utah County nonattainment area, provide a reliable indication that these improvements in air quality reflect the application of permanent steps to improve the air quality in the region, rather than just temporary economic or meteorological changes.

(iii) Ogden City

For Ogden City, the statutory date for RACM implementation was four years after designation, or September 26, 1999. Its attainment date was December 31, 2001. As discussed earlier, there was no nonattainment SIP for Ogden City, but there were a number of control measures that applied to nonattainment areas in general and were at least partly responsible for bringing the area into compliance with the PM₁₀ NAAQS.

Since these control measures (open burning rule, visible emissions rule, fugitive dust rule, and vehicle I/M) were incorporated into the Utah SIP, the emission reductions that resulted are consistent with the notion of permanent and enforceable improvements in air quality. Taken together, the trends in ambient air quality illustrated in the preceding paragraph, along with the continued implementation of these control measures, provide a reliable indication that these improvements in air quality reflect the application of permanent steps to improve the air quality in the region, rather than just temporary economic or meteorological changes.

~~[In addition, Ogden began participating in the woodburning program on a voluntarily basis during the winter of 1993.]~~

(4) State has Met Requirements Under Section 110 and Part D

CAA 107(d)(3)(E)(v) - *The State containing such area has met all requirements applicable to the area under section 110 and part D.* Section 110 of the CAA deals with the broad scope of state implementation plans and the capacity of the respective state agency to effectively administer such a plan. Sections I through VIII of Utah's SIP contain information relevant to these criteria. Part D deals specifically with plan requirements for nonattainment areas, and includes the requirements for a maintenance plan in Section 175A.

Utah currently has an approved SIP that meets the requirements of section 110(a)(2) of the Federal Clean Air Act. Many of these elements have been in place for several decades. In the March 9, 2001 approval of Utah's Ogden City Maintenance Plan for Carbon Monoxide, EPA stated:

On August 15, 1984, we approved revisions to Utah's SIP as meeting the requirements of section 110(a)(2) of the CAA (see 45 FR 32575). Although section 110 of the CAA was amended in 1990, most of the changes were not substantial. Thus, we have determined that the SIP revisions approved in 1984 continue to satisfy the requirements of section 110(a)(2). [For further detail, see 45 FR 32575 dated August 15, 1984 (Volume 49, No. 159) or 66 FR 14079 dated March 9, 2001 (Volume 66, No. 47).]~~[For further detail, see 45 FR 32575 (FR August 15, 1984 (Volume 66, No. 47), page 14079.)]~~

[Part D of the Clean Air Act addresses "Plan Requirements for Nonattainment Areas". One of the pre-conditions for a maintenance plan is a fully approved attainment plan for the area. This is also discussed in section IX.A.10.b(2).]

For Salt Lake County, the Part D requirements for PM₁₀ were addressed in an attainment SIP approved by EPA on July 8, 1994 (59 FR 35036).

For Utah County, the Part D requirements for PM₁₀ were most recently addressed in an attainment SIP approved by EPA on December 23, 2002 (67 FR 78181).

For Ogden City, it is anticipated that the Part D requirements for PM₁₀ will be found to have been satisfied via EPA's Clean Data Areas Approach (October 18, 1999).]

(5) Maintenance Plan for PM₁₀ Areas

As stated in the Act, an area may not request redesignation to attainment without first submitting, and then receiving EPA approval of, a maintenance plan. The plan is basically a quantitative showing that the area will continue to attain the NAAQS for an additional 10 years (from EPA approval), accompanied by sufficient assurance that the terms of the numeric demonstration will be administered by the State and by the EPA in an oversight capacity. The maintenance plan is the central criterion for redesignation. It is contained in the following subsection.

IX.A.10.c Maintenance Plan

CAA 107(d)(3)(E)(iv) - *The Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175A.* An approved maintenance plan is one of several criteria necessary for area redesignation as outlined in CAA 107(d)(3)(E). The maintenance plan itself, as described in Section 175A of the CAA and further addressed in EPA guidance (Procedures for Processing Requests to Redesignate Areas to Attainment, John Calcagni to Regional Air Directors, September 4, 1992; or for the purpose of this document, simply “Calcagni”), has its own list of required elements. The following table is presented to summarize these requirements. Each will then be addressed in turn.

Table IX.A.36 Requirements of a Maintenance Plan			
Category	Requirement	Reference	Addressed in Section
Maintenance demonstration	Provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation.	CAA: Sec 175A(a)	IX.A.10.c(1)
Revise in 8 Years	The State must submit an additional revision to the plan, 8 years after redesignation, showing an additional 10 years of maintenance.	CAA: Sec 175A(b)	IX.A.10.c(8)
Continued Implementation of Nonattainment Area Control Strategy	The Clean Air Act requires continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions.	CAA: Sec 175A(c), CAA Sec 110(l), Calcagni memo	IX.A.10.c(7)
Contingency Measures	Areas seeking redesignation from nonattainment to attainment are required to develop contingency measures that include State commitments to implement additional control measures in response to future violations of the NAAQS.	CAA: Sec 175A(d)	IX.A.10.c(10)
Verification of Continued Maintenance	The maintenance plan must indicate how the State will track the progress of the maintenance plan.	Calcagni memo	IX.A.10.c(9)

(1) Demonstration of Maintenance - Modeling Analysis

CAA 175A(a) - Each State which submits a request under section 107(d) for redesignation of a nonattainment area as an area which has attained the NAAQS shall also submit a revision of the applicable implementation plan to provide for maintenance of the NAAQS for at least 10 years after the redesignation. The plan shall contain such additional measures, if any, as may be required to ensure such maintenance. The maintenance demonstration is discussed in EPA guidance (Calcagni) as one of the core provisions that should be considered by states for inclusion in a maintenance plan.

According to Calcagni, a State may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory (discussed below) or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS. Utah has elected to make its demonstration based on air quality modeling. The guidance goes on to say that, in cases where a nonattainment SIP was based on air quality modeling, the maintenance plan should be based upon the same level of modeling used before. Furthermore, it says, such modeling should be consistent with current EPA modeling guidance.

The existing PM₁₀ nonattainment SIP demonstrations for both Salt Lake and Utah Counties were based on a statistical modeling approach called chemical mass balance (CMB). This is a receptor based model that does not directly factor meteorology or dispersion characteristics into its predictions. Furthermore, CMB is limited in its treatment of secondary aerosol formation, which has historically accounted for between 65% and 85% of the overall PM₁₀ collected at the monitoring stations. While the success of these nonattainment SIPs is more or less an endorsement of the CMB modeling upon which they were founded, EPA felt that any subsequent demonstration of maintenance should rely instead on a model that is more comprehensive in its assumptions.

In consultation with EPA Region VIII, DAQ decided to base the new Maintenance Plan upon a grid-based aerosol model called UAM-AERO. This model is an extension of the widely used photochemical model, the Urban Airshed Model (UAM) Version IV, which has been adapted to treat aerosol processes. DAQ established a UAM-AERO modeling domain that included each of Utah's three PM₁₀ nonattainment areas. This single comprehensive modeling analysis serves as the basis for the maintenance demonstration for each area.

The model was applied to address elevated 24-hour concentrations of PM₁₀ along the Wasatch Front (WF). These develop during winter-time episodes of regional scale high pressure and associated valley temperature inversions. The inversions promote the accumulation of PM₁₀ and PM₁₀ precursor gases that lead to significant secondary aerosol formation. Before the nonattainment SIPs were implemented, these ambient values often exceeded the 24-hour health standard for PM₁₀.

In this analysis, DAQ has employed UAM-AERO to evaluate the airshed under worst case winter-time inversion conditions. In order to do so, the model considers two historical episodes: 1) January 1-10, 2001 and 2) February 1-8, 2002. Episode selection was based on criteria that included meteorology, observed PM₁₀ concentrations, and data availability. Further discussion concerning episode selection can be found in Section 2 of the modeling portion of the technical support document (TSD).

Despite numerous severe inversion episodes during the past decade, PM₁₀ concentrations have not been sufficient to cause a violation of the NAAQS. Consequently, the two selected episodes do

not represent NAAQS violations, but do capture elevated PM₁₀ concentrations, worst-case meteorology, and current emission levels. Therefore, by modeling these episodes and projecting emissions into future years, the analysis should accurately reflect the ability of the nonattainment areas to maintain the PM₁₀ NAAQs over the next 10 years.

The DAQ modeling analysis requires two main inputs: meteorological data and emissions data. The applications of these inputs are discussed below.

(a) Meteorological data

[Recent UDAQ meteorological modeling projects using advanced “state of the science” prognostic meteorological models have proven unsuccessful in simulating highly variable Wasatch Front meteorology during inversion conditions. These problems led UDAQ to choose a diagnostic meteorological model called the Diagnostic Wind Model (DWM) model for the January 2001 and February 2002 episodes to avert many of the past modeling problems. The DWM assimilates actual observations of wind speed and direction to diagnose and construct a consistent wind field.]

UDAQ embarked on a 4-phase modeling approach in order to develop the most realistic wind fields possible. Each phase of the 4-phase modeling approach utilized unique combinations of observed meteorological data for each analysis. Each of the 4 phases is described below:

Phase 1

The DWM model was run utilizing 60-100 surface observing stations, two radiosondes, and two SODARs per day. The surface station data was taken from the University of Utah MESOWEST database and included a wide variety of station types. Phase 1 of modeling utilized only surface stations with an elevation of 5,500ft or lower. The National Weather Service Salt Lake City radiosonde data was used along with two DAQ SODAR units operated in Utah and Salt Lake valleys. It was thought that the multitude of available data would allow DWM to produce representative wind fields.

UAM-AERO results showed modeled PM₁₀ values that were only 40-50% of the observed values. Model output evaluation showed that PM₁₀ was being advected out of the Salt Lake Valley (SLV) and the model domain to the SE. Afternoon up-valley NW winds moved PM₁₀ into the mountains to the SE of the SLV. At night, winds became light and variable at most surface stations and as a result were unable to return the PM₁₀ back to the SLV. Additionally, DAQ’s hypothesized benefit of having a multitude of surface stations actually induced unrealistic vertical motions due to surface convergence of widely varying wind directions.

Phase 2

The failings of phase 1 encouraged DAQ to be more selective of the surface stations used in DWM. First, the Salt Lake Valley SODAR was discarded due to observations that were incongruent with the Utah Valley SODAR and the Salt Lake City radiosonde. Second, DAQ selected only the DAQ operated surface stations. These surface stations are situated in strategic locations across the Wasatch Front. 11 DAQ stations were used. The phase 2 hypothesis was that the more selective set of surface stations might produce a wind field with less convergence and resultant vertical motions.

DAQ found that the phase 2 wind fields produce periods of daytime NW winds that advected pollutants out of the SLV. The nocturnal and morning winds were light and variable and were

1 unable to return the pollutants to the SLV. Most of the observations within the SLV show a trend
2 of daytime up-valley flow and nighttime weak variable flow. In reality, the daytime flow re-
3 circulates within the boundaries of the inversion but in UAM-AERO the continuous grid network
4 cannot retain the flow within the open sided grid cells of the SLV.

5 6 Phase 3

7
8 Phase 2 results showed transport of PM₁₀ out of the SLV. Model evaluation clearly showed a
9 direct link with the observation wind direction and speeds. Phase 3 tested the possibility that a
10 single station located in SLV might produce a wind field that has a more even distribution of
11 wind direction and speeds. In other words, is there a station in SLV that is representative of the
12 valley but where daytime winds and nighttime winds balance each other? If so, developing a
13 wind field from a single station may reduce advection out of the SLV.

14
15 Three separate wind fields were developed in phase 3. These wind fields utilized the centrally
16 located and well sited DAQ Hawthorne and West Valley monitors as well as another well sited
17 but southeasterly located DAQ Cottonwood station. The results of phase 3 modeling again
18 showed advection out of the SLV and the domain. Stronger daytime NW winds compared to
19 nighttime light and variable winds again forced the loss of PM₁₀.

20 21 Phase 4

22
23 Phases 1-3 clearly demonstrated the inability of the DWM model to accurately represent the
24 conceptual understanding of inversion conditions. The model deficiencies arise from the model
25 grid-cell structure. The model grid cells are continuous and are unable to “trap” or contain air
26 within an inversion layer. The real wind observations in the SLV do have advective properties
27 that would allow the pollutants to move beyond the boundaries of the SLV under non-inversion
28 conditions. However, under inversion conditions the advective properties of the real wind
29 observations are negated by a forced recirculation of air within the inversion layer by the
30 containing boundaries of the inversion.

31
32 In phase 4, a purely idealized flow was created in the attempt to retain pollutants in the SLV. A
33 bimodal wind direction field was created using an afternoon NW wind (330) and an evening,
34 night, and morning SE wind (140). These directions correspond to daytime up-valley flow and
35 nighttime down-valley flow. Wind speeds were chosen so that advection was limited to within
36 the boundaries of the SLV. This wind field, while idealized, fits the conceptual understanding of
37 inversion conditions. Phase 4 modeling retains PM₁₀ within the SLV and UAM-AERO PM₁₀
38 results show excellent agreement with the observations.][Recent UDAQ meteorological modeling
39 projects using advanced “state-of-the-science” models have proven unsuccessful in simulating
40 highly variable Wasatch Front meteorology during inversion conditions. Initial modeling
41 attempts for the January 2001 and February 2002 episodes also proved unsuccessful due to the
42 inability of the model to reproduce the highly variable meteorology (wind fields) and elevated
43 PM₁₀ concentrations observed during the episodes.

44
45 In order to develop the most realistic metrological analysis, a 4 phase Diagnostic Wind Model
46 (DWM) modeling approach was utilized. In the first 3 phases, DWM used 3 unique
47 combinations of observed meteorological data for each analysis. None of the analyses produced a
48 realistic wind field. The 3 wind fields were unable to capture and elevate PM₁₀ concentrations
49 within the Wasatch Front inversion.

50
51 In Phase 4, UDAQ developed a wind field that fits the conceptual understanding of Wasatch
52 Front inversion conditions. A bi-modal idealized wind field was created in the attempt to retain

1 and elevate pollutants. The Phase 4 meteorological analysis was successful in reproducing
2 elevated PM₁₀ concentrations. UDAQ considers this analysis to be conservative with respect to
3 predicted PM₁₀ concentrations.]
4

5 (b) Emissions Data

6
7 Area, point, and mobile emissions inventories were compiled for all sources within the modeling
8 domain. Inventories included primary PM₁₀, sulfur dioxide (SO₂), oxides of nitrogen (NO_x),
9 carbon monoxide (CO), and volatile organic compounds (VOC). In addition, an ammonia (NH₃)
10 inventory was estimated for area and mobile sources. Estimates of biogenic emissions were not
11 included in the analysis because the episodes occurred in January and February when biogenic
12 emissions are negligible. Other seasonal adjustments were also made to the inventory
13 (adjustments are described in the modeling portion of the TSD). Base-year and projection
14 inventories are also described in more detail in the TSD.
15

16 Emission inventories are processed and spatially placed in the modeling domain by the Sparse
17 Matrix Operator Kernel Emission (SMOKE) modeling system. SMOKE was developed by EPA
18 for integration into the Models-3 Air Quality Modeling System and has been used in many air
19 quality studies. To ensure that the model represents actual emissions during each model episode
20 day, SMOKE uses source specific Source Classification Codes to chemically speciate and
21 temporally allocate emissions. In addition, SMOKE uses other emission characteristics, such as
22 stack height, exit velocity, and plume temperature to place emissions in the correct vertical layer
23 of UAM-AERO. Mobile and other area source emissions are treated as ground level emissions
24 and input into the lowest model layer.
25

26 (c) Modeling Results

27
28 Projection year modeling was completed for the years 2005, 2008, 2011, 2014, 2015, and 2017.
29 EPA's most current modeling guidance recommends that model predictions be used in a relative
30 sense rather than an absolute sense. Applying the model this way is done by calculating a
31 "relative reduction factor" (RRF) for grid cells that are co-located with a PM₁₀ monitor. RRF
32 values were computed for each day of the base-case modeling years (January 2001 and February
33 2002) and subsequently applied to the future year predictions. The technique for creating the
34 individual RRF is described in section 7 of the modeling TSD.
35

36 Results demonstrated that modeled PM₁₀ concentrations are highest in 2005. From there they
37 decline until reaching a minimum value in 2011 or 2014, and then increase again through 2017.
38 No PM₁₀ values greater than 150 ug/m³ were modeled for any *ambient air* using either episode.
39 Ambient air means anywhere that would be accessible to the general public. There were two grid
40 cells which showed predicted concentrations in excess of 150 ug/m³, but they are both located on
41 the property of Kennecott Utah Copper Corp. The general public does not have access to this
42 area, and so these grid-cells do not represent ambient air. Results of the modeling analysis are
43 presented below for each of Utah's three PM₁₀ nonattainment areas.
44

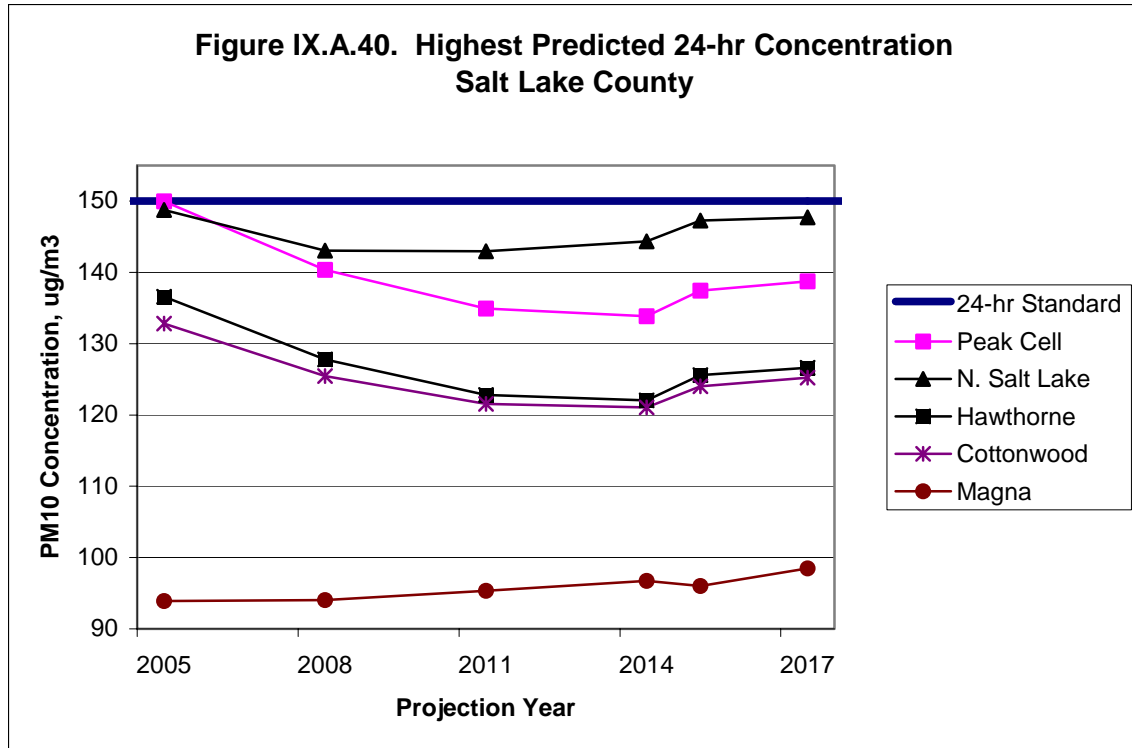


Figure IX.A.40 above illustrates the trend of predicted concentrations at the monitoring stations and the highest modeled grid cells in the Salt Lake County PM₁₀ nonattainment area and the entire domain. The peak cell is near the Cottonwood monitor. These data reflect the modeled PM₁₀ concentrations after application of the RRF.

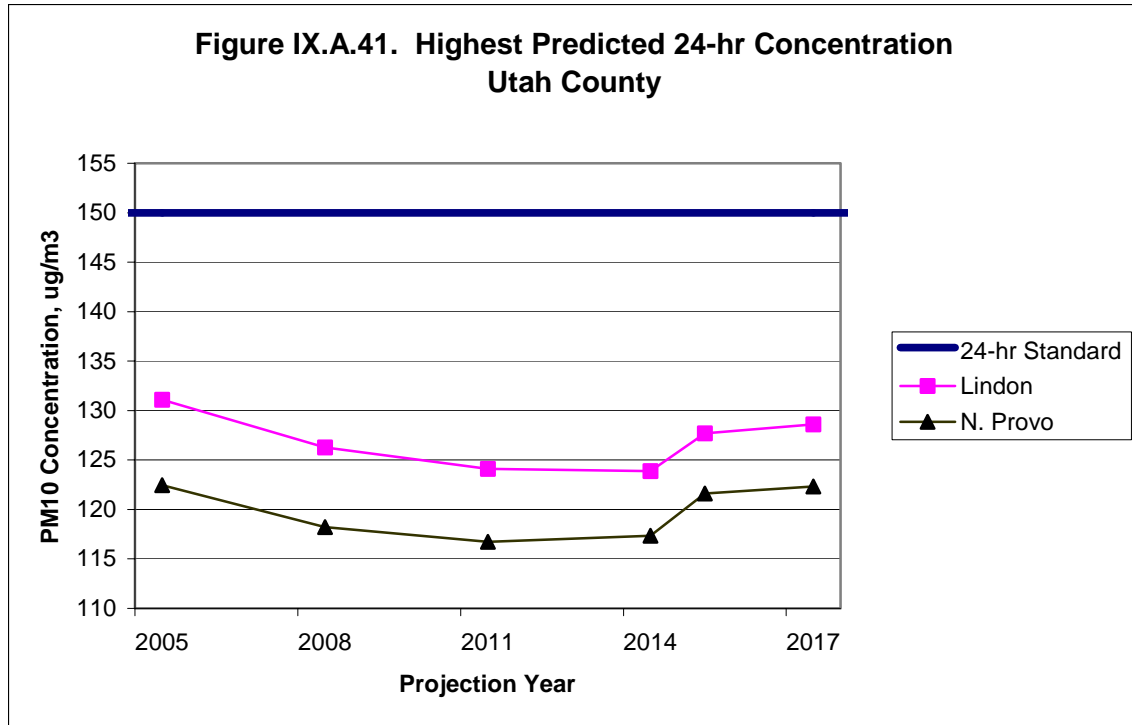


Figure IX.A.41 above illustrates the trend of predicted concentrations at the highest modeled grid-cells in the Utah County PM₁₀ nonattainment area. The highest grid cell is located near the Lindon monitor. The data reflects the modeled PM₁₀ concentrations after application of the RRF. The model predicts a significant margin of “safety” with respect to the health standard throughout the projection years.

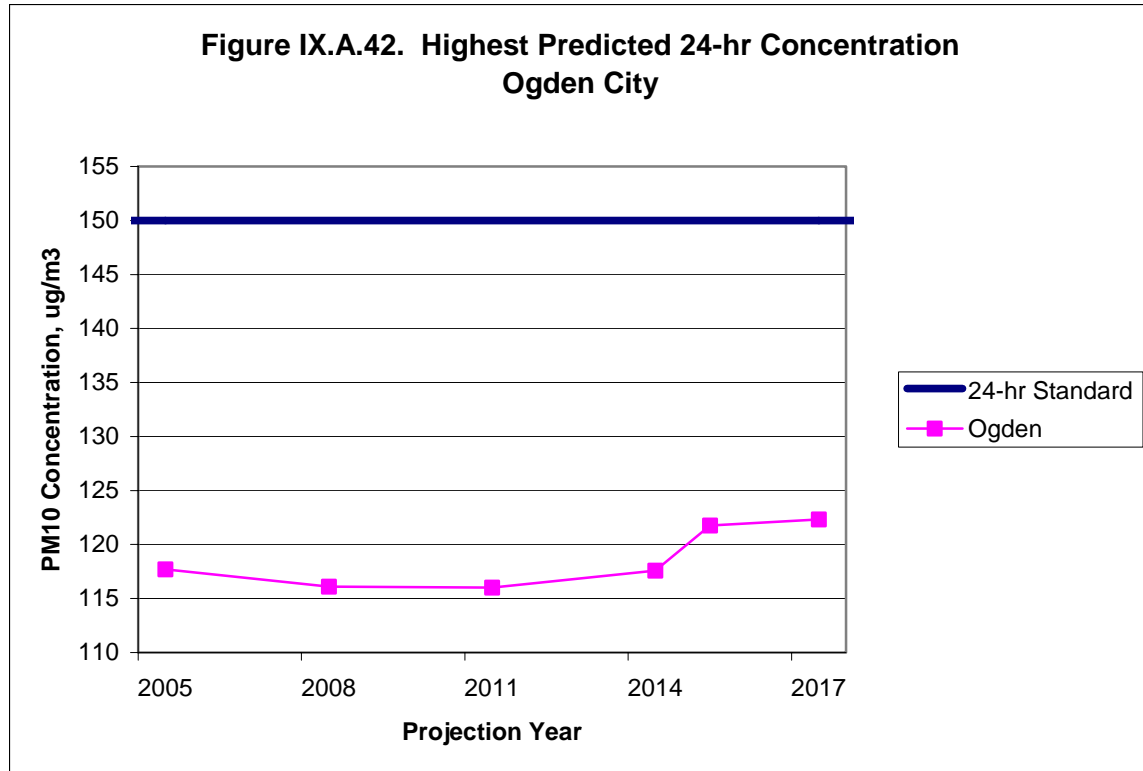


Figure IX.A.42 above illustrates the trend of predicted concentrations at the highest modeled grid cells in the Ogden City PM₁₀ nonattainment area. The monitor is located in this highest grid cell. The data reflects the modeled PM₁₀ concentrations after application of the RRF. The model predicts a significant margin of “safety” with respect to the health standard throughout the projection years.

(d) Annual Standard

As presented above, the modeled demonstration of maintenance was designed to address the 24-hour standard for PM₁₀ during the winter conditions that drive secondary aerosol formation. This scenario has historically led to elevated concentrations of PM₁₀ along the Wasatch Front.

The attainment demonstrations in the 1991 PM₁₀ SIP were also designed to address the 24-hour standard, based on EPA guidance which states that “The SIP related emission limits should be based on the NAAQS (annual or 24-hour) which result in the most stringent control requirements” (see Subsection IX.A.9). As stated (by EPA or in that version of the SIP), it was assumed that “the application of many of the control strategies that are being implemented to reduce the 24-hour PM₁₀ concentrations will also result in a reduction of the annual PM₁₀ concentrations even though they are designed to reduce wintertime 24-hr concentrations.” Due to the disparity in concentrations observed during the remainder of the year, “the winter season is the period that has the greatest impact on the annual average (see Table IX.A.24), and controlling PM₁₀ concentrations during the winter will have the greatest impact on the annual average.”

As discussed in the section concerning improvements in air quality, the downward trend in the annual arithmetic mean concentrations is reflective of these control strategies, many of which were directed at the wintertime 24-hour concentrations. This corroborates the assumption made in the 1991 SIP.

This maintenance plan will continue to rely upon that assumption. Since the control strategies required by the 1991 SIP were sufficient to achieve compliance with the 24-hour standard, the maintenance plan requires no new control strategies for continued compliance. Since the controls required by the 1991 SIP were deemed sufficient to ensure compliance with the annual standard, no further controls will be necessary to achieve continued compliance with that standard either. Thus, the modeled demonstration of attainment for the 24-hour PM₁₀ standard provides adequate assurance that the annual PM₁₀ standard will be protected as well.

The annual PM₁₀ standard was never violated in Ogden City. [In fact the highest single value ever recorded (37.6 ug/m³ in 1991) was only 75% of the standard. Furthermore, as shown in Figure IX.A.39, the general trend in the annual arithmetic mean concentrations observed since 1986 is downward. As explained in section IX.A.10.b(3)(b)(iii), this trend is reflective of permanent and enforceable control measures that were incorporated into the Utah SIP. The continued implementation of these control measures provides a reliable indication that the annual mean concentrations of PM₁₀ will remain well within the standard of 50 ug/m³.]

(e) Magna

The violations of the PM₁₀ standard in Magna were caused primarily by the blowing of tailings from the Kennecott tailings pond under certain meteorological conditions while the plant was shut down.

While this scenario was never explicitly modeled in the 1991 SIP, it was addressed by requiring reasonably available control methods (RACM), which took the form of a comprehensive fugitive dust plan. The terms of this dust plan have been incorporated into the SIP at Section IX Part H.

(2) Attainment Inventory

The attainment inventory is discussed in EPA guidance (Calcagni) as another one of the core provisions that should be considered by states for inclusion in a maintenance plan.

According to Calcagni, the stated purpose of the attainment inventory is to establish the level of emissions during the time periods associated with monitoring data showing attainment.

In cases such as this, where a maintenance demonstration is founded on a modeling analysis, the attainment inventory is necessary to validate the model with respect to the ambient measurements that were made at the air monitoring locations during the commensurate period in time. For this analysis, base-year attainment inventories were compiled for 2001 and 2002.

Continued attainment is then demonstrated by running an air quality model, which considers factors related to meteorology, topography, and certain stack characteristics as well as the emissions of an air contaminant. After evaluating all of these factors, the model predicts concentrations of the air contaminant that are then compared to the health standard.

This implies that the analysis will require additional projection year inventories. Calcagni speaks to this as well, noting that the projection inventory should consider future growth, including population and industry, should be consistent with the base-year attainment inventory, and should document data inputs and assumptions. Any assumptions concerning emission rates must reflect permanent, enforceable measures.

Utah has compiled both attainment and projection inventories for use in a quantitative modeling demonstration. The emissions contained in the inventories include sources located within a regional area called a modeling domain. The modeling domain encompasses all three areas within the state that were designated as nonattainment areas for PM₁₀: Salt Lake County, Utah County, and Ogden City, as well as a bordering region[see Figure IX.A.23].

There are three general categories of sources included in these inventories: industrial point sources, smaller area sources, and mobile sources.

For each of these source categories, the pollutants that were inventoried included: particulate matter with an aerodynamic diameter of ten microns or less (PM₁₀), sulfur dioxide (SO₂), oxides of nitrogen (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC). SO₂ and NO_x are specifically defined as PM₁₀ precursors, that is, compounds that, after being emitted to the atmosphere, undergo chemical or physical change to become PM₁₀. Any PM₁₀ that is created in this way is referred to as secondary aerosol. The UAM-AERO model also considers ammonia, CO and VOC to be contributing factors in the formation of secondary aerosol.

The unit of measure for point and area sources is the traditional tons per year, but the UAM-AERO model includes a pre-processor that converts these emission rates to hourly increments throughout each day for each episode. Mobile source emissions are reported in terms of tons per day, and are also pre-processed by the model.

The basis for the point source and area inventories, for both the base-year attainment inventories as well as all future-year projection inventories, was the 2001 inventory of actual emissions that had already been compiled by the Division of Air Quality.

Area sources, as well as the smaller point sources, were projected forward from 2001, using population and economic forecasts from the Governor's Office of Planning and Budget.

The larger point sources - those whose emissions could exceed 100 tons per year (tpy) of PM₁₀, 200 tpy NO_x, or 250 tpy SO₂ - were projected somewhat differently. These sources were evaluated at their maximum emission rates, based on existing regulatory conditions of operation and construction. Furthermore, they were evaluated on their capability to emit on a short-term basis. As such, the projected emissions from these large sources reflect enforceable emission limits that are pertinent to the protection of public health with respect to a 24-hour standard for PM₁₀. Point source projections also include any current emission reduction credits (banked emissions).

Mobile source emissions were calculated for each year using MOBILE6.1/6.2 in conjunction with the appropriate estimates for vehicle miles traveled (VMT). VMT estimates for the urban counties were based on a travel demand model that is only run periodically for specific projection years. VMT for intervening years were estimated by interpolation.

Since this SIP subsection takes the form of a maintenance plan, it must demonstrate that the area will continue to attain the PM₁₀ NAAQS throughout a period of ten years from the date of EPA approval. It is also necessary to "spot check" this ten-year interval. Hence, projection inventories were prepared for the following years: 2005, 2008, 2011, 2014, and 2017 (the ten-year mark from anticipated EPA approval). 2015 was also projected as possible planning year for the purpose of future transportation conformity analyses.

The following table is provided to summarize these inventories. As described, they represent point, area, and mobile sources in the modeling domain. They include PM₁₀, SO₂, NO_x, CO and

VOC, and they span from the base-years (2001 and 2002) through the projection years of 2005, 2008, 2011, 2014, and 2017.

Table IX.A.37 Emission Inventories for the Modeling Domain. Actual Emissions for 2001-2002; Emission Projections for 2005-2017

Input CO	2001	2002	2005	2008	2011	2014	2015	2017
Point (Tons/Year) *	30,850.43	25,237.47	63,184.04	64,254.04	65,401.66	66,512.50	66,882.78	67,590.87
Area (Tons/Year)	184,125.74	186,748.59	195,132.88	203,263.30	211,525.98	219,584.84	222,202.47	227,463.10
On-Road (Tons/Day) **	1,801.72	1,935.13	2,327.33	1,987.96	1,896.95	1,832.70	1,808.67	1,824.95

NOx	2001	2002	2005	2008	2011	2014	2015	2017
Point (Tons/Year) *	17,263.27	15,606.80	37,618.03	37,947.67	38,290.32	38,614.84	38,722.94	38,918.61
Area (Tons/Year)	31,822.89	31,665.83	31,555.39	31,043.87	30,622.93	30,660.63	30,756.97	31,044.91
On-Road (Tons/Day) **	160.57	161.19	181.55	145.70	117.38	90.91	84.96	82.75

PM10	2001	2002	2005	2008	2011	2014	2015	2017
Point (Tons/Year) *	7,418.19	6,818.33	14,436.83	14,612.90	14,779.78	14,938.94	14,991.99	15,077.57
Area (Tons/Year)	16,314.20	16,231.96	16,347.93	16,595.09	16,974.18	17,365.87	17,484.59	17,692.48
On-Road (Tons/Day) **	51.30	52.33	71.02	75.85	81.16	90.00	104.84	105.38

SOx	2001	2002	2005	2008	2011	2014	2015	2017
Point (Tons/Year) *	8,884.91	6,048.77	35,494.35	35,550.44	35,607.07	35,659.65	35,677.17	35,703.41
Area (Tons/Year)	2,134.56	2,149.09	2,219.34	2,294.93	2,370.11	2,441.92	2,465.20	2,510.63
On-Road (Tons/Day) **	5.32	5.46	7.29	7.43	8.04	8.63	8.83	8.83

VOC	2001	2002	2005	2008	2011	2014	2015	2017
Point (Tons/Year) *	5,309.57	5,183.67	8,034.87	8,206.38	8,379.58	8,545.44	8,600.73	8,696.39
Area (Tons/Year)	150,738.67	150,585.37	151,664.80	153,339.12	156,232.05	159,330.42	160,290.66	162,032.65
On-Road (Tons/Day) **	89.16	89.44	88.80	71.74	60.37	51.39	49.96	49.77

* Point source totals for 2001 & 2002 include slight variations between specific episode days. The numbers reported in this table reflect the highest number for each pollutant. Banked emissions are included in all projection year inventories (2005 forward).

** On-Road source totals for every year include slight variations between specific episode days. The numbers reported in this table reflect the episode day on which the NOx and the PM10 were the highest.

More detail concerning any element of the inventory can be found at the appropriate section of the Technical Support Document (TSD). More detail about the general construction of the inventory may be found in the Inventory Preparation Plan at Section 1.a of the TSD. Discussion concerning any adjustments that were made to the inventoried emissions prior to use in the UAM-AERO model may be found in the modeling section of the TSD.

(3) Emissions Limitations

As discussed above, there was a distinction made in the modeling of projected emissions for the point source category. The larger sources within the modeling domain were modeled at their maximum allowable emissions, as determined on a [24-hour][short-term] basis.

A subset of these “large” sources was subsequently identified for the purpose of establishing emission limitations as part of the Utah SIP. This subset includes any large source located within any of the three current nonattainment areas for PM₁₀: Salt Lake County, Utah County, or Ogden City. A source was also included in the subset if it was currently regulated for PM₁₀ under section IX, Part H of the Utah SIP. There were several sources in Davis County that were close enough to the border so as to have originally been included in the original PM₁₀ SIP.

As discussed before, the emission limits for these sources had already been reflected in the projected emissions inventories used in the modeling analysis. Many of these limits appear in State issued Approval Orders or Title V Operating Permits. Such regulatory documents typically include many emission limits and operating restrictions. Only those limits that are truly significant from an airshed management perspective have been incorporated specifically into the SIP.

These limits are incorporated in the Utah SIP at Section IX, Part H (formerly Sections 1 and 2 of Appendix A to Section IX, Part A), and as such remain federally enforceable.

These conditions demonstrate maintenance through 2017[see subsections IX.A.10c.(1) and (2)].

(4) Emission Reduction Credits

Existing Emission Reduction Credits on file with the Utah Division of Air Quality were included in the modeled demonstration of maintenance outlined in Subsection IX.A.10.c(1). Concerning the subsequent banking of any emission reduction credits for PM₁₀, or precursors thereto, the emission levels contained in the modeled demonstration of maintenance outlined in Subsection IX.A.10.c(1), or incorporated into the Utah SIP at Section IX, Part H (formerly Appendix A to Section IX, Part A,) should serve to establish a baseline for the emission rates relied upon by this maintenance plan. These emission reduction credits, whether pre-existing or established subsequent to the approval of this SIP revision, are allowed to the extent that they are established by actual, verifiable, and enforceable reductions in emissions.

(5) Additional Controls for Future Years

Since the[se] emission limitations [discussed in subsection IX.A.10c.(3)]remain federally enforceable and, [have been][as demonstrated in IX.A.10.c(1) above, are]sufficient to ensure continued attainment of the PM₁₀ NAAQS, there is no need to require any additional control measures to maintain the PM₁₀ NAAQS.

(6) Mobile Source Budget for Purposes of Conformity

The transportation conformity provisions of section 176(c)(2)(A) of the Clean Air Act (CAA) require regional transportation plans and programs to show that "...emissions expected from implementation of plans and programs are consistent with estimates of emissions from motor vehicles and necessary emissions reductions contained in the applicable implementation plan..." EPA's transportation conformity regulation (40 CFR 93.118, last amended at 69 FR 40072, July 1, 2004) also requires that motor vehicle emission budgets must be established for the last year of the maintenance plan, and may be established for any years deemed appropriate. If the maintenance plan does not establish motor vehicle emissions budgets for any years other than the last year of the maintenance plan, the conformity regulation requires that a "demonstration of consistency with the motor vehicle emissions budgets must be accompanied by a qualitative finding that there are not factors which would cause or contribute to a new violation or exacerbate an existing violation in the years before the last year of the maintenance plan." The normal interagency consultation process required by the regulation shall determine what must be considered in order to make such a finding.

Road dust projections were estimated using the EPA PART5 particulate emissions model. However, prior to applying these emission estimates in an attainment demonstration using the UAM-AERO model, the road dust inventory was discounted by 75% as part of the attainment modeling method to more accurately reflect the conventional understanding of the relationship of modeled road dust emissions and actual fugitive dust measurements recorded by the State air quality monitoring network. The mobile source budgets set forth in this Plan for direct PM₁₀ (including road dust) are based on the unmodified estimates from the PART5 model, and as such, no discount adjustments should be applied as part of the regional emissions analysis for future conformity determinations.

For transportation plan analysis years after the last year of the maintenance plan (in this case 2017), a conformity determination must show that emissions are less than or equal to the maintenance plan's motor vehicle emissions budget(s) for the last year of the implementation plan.

Mobile sources are not significant contributors of SO₂. This SIP does not establish a motor vehicle emissions budget for SO₂.

(a) Salt Lake County Mobile Source PM₁₀ Emissions Budgets

In this maintenance plan, the State is establishing transportation conformity motor vehicle emission budgets (MVEB) for 2015 and 2017.

(i) Direct PM₁₀ Emissions Budget

As presented in the Technical Support Document (SMOKE Formats for Urban Counties), estimated on-road mobile source emissions for Salt Lake County, in 2015 and 2017, of direct sources of PM₁₀ (road dust, brake wear, tire wear, and exhaust particles) were 48.86 tons per winter weekday. The maintenance demonstration in Subsection IX.A.10.c.(1) estimates a maximum PM₁₀ concentration of 147.7 ug/m³ in 2017 within the Salt Lake County portion of the modeling domain. This value is 2.3 ug/m³ below the NAAQS of 150 ug/m³.

EPA's conformity regulation (40 CFR 93.124) also allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. The implementation plan can then allocate some

or all of this additional "safety margin" to the emissions budgets for transportation conformity purposes. In this case, the safety margin equates to 2.3 ug/m³.

~~**[Editorial Note: Inclusion of the following paragraph in the document to be proposed for public comment depends on the results of the modeling analysis described therein. The results of this analysis were not known at the time this document was mailed to the UAQB members, but will be known by the time of the UAQB meeting. Should the model results show that the area would still be maintaining the PM₁₀ standard using the expanded MVEB, Alternative 1 would be included.]**~~

~~**[Alternative 1.]**~~ Using the same emission projections for point and area and non-road mobile sources, the UAM-AERO model was re-run using 52[.00] tons of PM₁₀ per winter weekday for mobile sources (and 35[.00] tons/winter weekday of NO_x). The revised maintenance demonstration for 2015 and 2017 still shows maintenance of the PM₁₀ standard. It estimates a maximum PM₁₀ concentration of 148.5 ug/m³ in 2017 within the Salt Lake County portion of the modeling domain. This value is 1.5 ug/m³ below the NAAQ Standard of 150 ug/m³. This maintenance plan allocates 0.8 ug/m³ of the safety margin to the transportation MVEB, and thereby sets the direct PM₁₀ MVEB for 2015 and 2017 at 52[.00] tons/winter weekday.

~~**[Should the modeling results indicate otherwise, Alternative 2 would replace Alternative 1.]**~~

~~**[Alternative 2. This maintenance plan sets the direct PM₁₀ MVEB for 2015 and 2017 at 49 tons/winter weekday.]**~~

[In terms of emissions, the safety margin can be described as follows: Using 52.00 tons per day of PM₁₀ and 35.00 tons per day of NO_x when modeling mobile source emissions in 2015 and 2017, the highest predicted concentration of PM₁₀ was 148.5 ug/cubic meter within the Salt Lake County portion of the modeling domain. This shows that the safety margin is at least 3.14 tons per day of PM₁₀ (52.00 tons per day minus 48.86 tons per day) and 0.04 tons per day of NO_x (35.00 tons per day minus 34.96 tons per day). This maintenance plan allocates a portion of the safety margin to the mobile source budgets.]

Mobile sources are not significant contributors of direct SO₄ exhaust particulates. This SIP does not establish a separate MVEB for SO₄.

(ii) NO_x Emissions Budget

NO_x emissions indirectly contribute to PM₁₀ concentrations through secondary chemical reactions and for this reason are sometimes referred to as indirect or secondary PM₁₀. As presented in the TSD (SMOKE Formats for Urban Counties), estimated on-road mobile source NO_x emissions in 2015 and 2017 were 34.96 tons per winter weekday. The maintenance demonstration in Subsection IX.A.10.c(1) estimates a maximum PM₁₀ concentration of 147.7 ug/m³ in 2017 within the Salt Lake County portion of the modeling domain. This value is 2.3 ug/m³ below the NAAQS of 150 ug/m³.

EPA's conformity regulation (40 CFR 93.124) also allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. The implementation plan can then allocate some or all of this additional "safety margin" to the emissions budgets for transportation conformity purposes. In this case, the safety margin equates to 2.3 ug/m³.

~~*[Editorial Note: Inclusion of the following paragraph in the document to be proposed for public comment depends on the results of the modeling analysis described therein. The results of this analysis were not known at the time this document was mailed to the UAQB members, but will be known by the time of the UAQB meeting. Should the model results show that the area would still be maintaining the PM₁₀ standard using the expanded MVEB, Alternative 1 would be included.]*~~

~~*[Alternative 1.]*~~ Using the same emission projections for point and area and non-road mobile sources, the UAM-AERO model was re-run using 35[.00] tons of NO_x per winter weekday for mobile sources (and 52[.00] tons/winter weekday of PM₁₀). The revised maintenance demonstration for 2015 and 2017 still shows maintenance of the PM₁₀ standard. It estimates a maximum PM₁₀ concentration of 148.5 ug/m³ in 2017 within the Salt Lake County portion of the modeling domain. This value is 1.5 ug/m³ below the NAAQS of 150 ug/m³. This maintenance plan allocates 0.8 ug/m³ of the safety margin to the transportation MVEB, and thereby sets the NO_x MVEB for 2015 and 2017 at 35[.00] tons/winter weekday.

[In terms of emissions, the safety margin can be described as follows: Using 52.00 tons per day of PM₁₀ and 35.00 tons per day of NO_x when modeling mobile source emissions in 2015 and 2017, the highest predicted concentration of PM₁₀ was 148.5 ug/cubic meter within the Salt Lake County portion of the modeling domain. This shows that the safety margin is at least 3.14 tons per day of PM₁₀ (52.00 tons per day minus 48.86 tons per day) and 0.04 tons per day of NO_x (35.00 tons per day minus 34.96 tons per day). This maintenance plan allocates a portion of the safety margin to the mobile source budgets.]

~~*[Should the modeling results indicate otherwise, Alternative 2 would replace Alternative 1.]*~~

~~*[Alternative 2. This maintenance plan sets the NO_x MVEB for 2015 and 2017 at 35 tons/winter weekday.]*~~

(b) Ogden City Mobile Source PM₁₀ Emissions Budgets

In this maintenance plan, the State is establishing transportation conformity motor vehicle emission budgets (MVEB) for 2015 and 2017.

(i) Direct PM₁₀ Emissions Budget

As presented in the TSD (Ogden City SMOKE Formats), estimated on-road mobile source emissions in 2015 and 2017 of primary sources of PM₁₀ (road dust, brake wear, tire wear, and exhaust particles) were 3.10 tons per winter weekday. The maintenance demonstration in Subsection IX.A.10.c(1) estimates a maximum PM₁₀ concentration of 122.3 ug/m³ in 2017 within the Ogden City portion of the modeling domain. This is 27.7 ug/m³ below the NAAQS of 150 ug/m³.

EPA's conformity regulation (40 CFR 93.124) also allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. The implementation plan can then allocate some or all of this additional "safety margin" to the emissions budgets for transportation conformity purposes. In this case, the safety margin equates to 27.7 ug/m³.

~~*[Editorial Note: Inclusion of the following paragraph in the document to be proposed for public comment depends on the results of the modeling analysis described therein. The results of this analysis were not known at the time this document was mailed to the UAQB members, but will be known by the time of the UAQB meeting. Should the model results show that the area would still be maintaining the PM₁₀ standard using the expanded MVEB, Alternative 1 would be included.]*~~

~~*[Alternative 1.]*~~ Using the same emission projections for point and area and non-road mobile sources, the UAM-AERO model was re-run using 4[.00] tons of PM₁₀ per winter weekday for mobile sources (and 2[.00] tons/winter weekday of NO_x). The revised maintenance demonstration for 2015 and 2017 still shows maintenance of the PM₁₀ standard. It estimates a maximum PM₁₀ concentration of 133.2 ug/m³ in 2017 within the Ogden City portion of the modeling domain. This value is 16.8 ug/m³ below the NAAQS of 150 ug/m³. This maintenance plan allocates 10.9 ug/m³ of the safety margin to the transportation MVEB, and thereby sets the direct PM₁₀ MVEB for 2015 and 2017 at 4[.00] tons/winter weekday.

~~*[Should the modeling results indicate otherwise, Alternative 2 would replace Alternative 1.]*~~

~~*[Alternative 2. This maintenance plan sets the direct PM₁₀ MVEB for 2015 and 2017 at 3 tons/winter weekday.]*~~

[In terms of emissions, the safety margin can be described as follows: Using 4.00 tons per day of PM₁₀ and 2.00 tons per day of NO_x when modeling mobile source emissions in 2015 and 2017, the highest predicted concentration of PM₁₀ was 133.2 ug/cubic meter within the Ogden City portion of the modeling domain. This shows that the safety margin is at least 0.90 tons per day of PM₁₀ (4.00 tons per day minus 3.10 tons per day) and 0.15 tons per day of NO_x (2.00 tons per day minus 1.85 tons per day). This maintenance plan allocates a portion of the safety margin to the mobile source budgets.]

Mobile sources are not significant contributors of direct SO₄ exhaust particulates. This SIP does not establish a separate MVEB for SO₄.

(ii) NO_x Emissions Budget

NO_x emissions indirectly contribute to PM₁₀ concentrations through secondary chemical reactions and for this reason are sometimes referred to as indirect or secondary PM₁₀. As presented in the TSD (Ogden City SMOKE Formats), estimated on-road mobile source NO_x emissions in 2015 and 2017 were 1.85 tons per winter weekday. The maintenance demonstration in Subsection IX.A.10.c(1) estimates a maximum PM₁₀ concentration of 122.3 ug/m³ in 2017 within the Ogden City portion of the modeling domain. This is 27.7 ug/m³ below the NAAQS of 150 ug/m³.

EPA's conformity regulation (40 CFR 93.124) also allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. The implementation plan can then allocate some or all of this additional "safety margin" to the emissions budgets for transportation conformity purposes. In this case, the safety margin equates to 27.7 ug/m³.

~~*[Editorial Note: Inclusion of the following paragraph in the document to be proposed for public comment depends on the results of the modeling analysis*~~

~~described therein. The results of this analysis were not known at the time this document was mailed to the UAQB members, but will be known by the time of the UAQB meeting. Should the model results show that the area would still be maintaining the PM₁₀ standard using the expanded MVEB, Alternative 1 would be included.]~~

~~[Alternative 1.]~~ Using the same emission projections for point and area and non-road mobile sources, the UAM-AERO model was re-run using 2[.00] tons of NO_x per winter weekday for mobile sources (and 4[.00] tons/winter weekday of PM₁₀). The revised maintenance demonstration for 2015 and 2017 still shows maintenance of the PM₁₀ standard. It estimates a maximum PM₁₀ concentration of 133.2 ug/m³ in 2017 within the Ogden City portion of the modeling domain. This value is 16.8 ug/m³ below the NAAQ Standard of 150 ug/m³. This maintenance plan allocates 10.9 ug/m³ of the safety margin to the transportation MVEB, and thereby sets the NO_x MVEB for 2015 and 2017 at 2[.00] tons/winter weekday.

~~[Should the modeling results indicate otherwise, Alternative 2 would replace Alternative 1.]~~

~~[Alternative 2. This maintenance plan sets the NO_x MVEB for 2015 and 2017 at 2 tons/winter weekday.]~~

[In terms of emissions, the safety margin can be described as follows: Using 4.00 tons per day of PM₁₀ and 2.00 tons per day of NO_x when modeling mobile source emissions in 2015 and 2017, the highest predicted concentration of PM₁₀ was 133.2 µg/cubic meter within the Ogden City portion of the modeling domain. This shows that the safety margin is at least 0.90 tons per day of PM₁₀ (4.00 tons per day minus 3.10 tons per day) and 0.15 tons per day of NO_x (2.00 tons per day minus 1.85 tons per day). This maintenance plan allocates a portion of the safety margin to the mobile source budgets.]

(c) Utah County Mobile Source PM₁₀ Emissions Budgets (Tons per winter day, for 2017 and beyond)

Upon the approval of this Maintenance Plan by EPA, the previously approved [Subsection IX.A.10, including]Utah County Mobile Source budgets for years 2010 and 2020, will be considered ~~[withdrawn and will no longer apply]~~[repealed,] and these new MVEB will take effect for future transportation conformity determinations [for 2017 and beyond].

The MVEB of 25 tpd of direct PM₁₀ (road dust, brake wear, tire wear, and exhaust particles) and 23 tpd of NO_x for 2017 and beyond will be used to determine whether plans, programs, and projects comply with the Maintenance Plan in applicable horizon years.

(i) Direct PM₁₀ MVEB

As presented in the TSD (SMOKE Formats for Urban Counties), estimated on-road mobile source emissions in 2017 of direct PM₁₀ (road dust, brake wear, tire wear, and exhaust particles) were 23.63 tons per winter weekday. The maintenance demonstration in Subsection IX.A.10.c(1) estimates a maximum PM₁₀ concentration of 128.6 ug/m³ in 2017 within the Utah County portion of the modeling domain. This concentration is 21.4 ug/m³ below the NAAQ Standard of 150 ug/m³.

EPA's conformity regulation (40 CFR 93.124) also allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating

compliance with the maintenance requirement. The implementation plan can then allocate some or all of this additional "safety margin" to the emissions budgets for transportation conformity purposes. In this case, the safety margin equates to 21.4 ug/m³.

~~*[Editorial Note: Inclusion of the following paragraph in the document to be proposed for public comment depends on the results of the modeling analysis described therein. The results of this analysis were not known at the time this document was mailed to the UAQB members, but will be known by the time of the UAQB meeting. Should the model results show that the area would still be maintaining the PM₁₀ standard using the expanded MVEB, Alternative 1 would be included.]*~~

~~*[Alternative 1.]*~~ Using the same emission projections for point and area and non-road mobile sources, the UAM-AERO model was re-run using 25[.00] tons of PM₁₀ per winter weekday for mobile sources (and 23[.00] tons/winter weekday of NO_x). The revised maintenance demonstration for 2017 still shows maintenance of the PM₁₀ standard. It estimates a maximum PM₁₀ concentration of 130.7 ug/m³ in 2017 within the Utah County portion of the modeling domain. This value is 19.3 ug/m³ below the NAAQS of 150 ug/m³. This maintenance plan allocates 2.1 ug/m³ of the safety margin to the transportation MVEB, and thereby sets the direct PM₁₀ MVEB for 2017 at 25[.00] tons/winter weekday.

~~*[Should the modeling results indicate otherwise, Alternative 2 would replace Alternative 1.]*~~

~~*[Alternative 2. This maintenance plan sets the direct PM₁₀ MVEB for 2017 at 24 tons/winter weekday.]*~~

[In terms of emissions, the safety margin can be described as follows: Using 25.00 tons per day of PM₁₀ and 23.00 tons per day of NO_x when modeling mobile source emissions in 2017, the highest predicted concentration of PM₁₀ was 130.7 ug/cubic meter within the Utah County portion of the modeling domain. This shows that the safety margin is at least 1.37 tons per day of PM₁₀ (25.00 tons per day minus 23.63 tons per day) and 2.30 tons per day of NO_x (23.00 tons per day minus 20.70 tons per day). This maintenance plan allocates a portion of the safety margin to the mobile source budgets.]

Mobile sources are not significant contributors of direct SO₄ exhaust particulates. This SIP does not establish a MVEB for SO₄.

(ii) NO_x MVEB

As presented in the TSD (SMOKE Formats for Urban Counties), estimated on-road mobile source emissions in 2017 of NO_x were 20.7 tons per winter weekday. The maintenance demonstration in Subsection IX.A.10.c(1) estimates a maximum PM₁₀ concentration of 128.6 ug/m³ for 2017 within the Utah County portion of the modeling domain. This is 21.4 ug/m³ below the NAAQS of 150 ug/m³.

EPA's conformity regulation (40 CFR 93.124) also allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. The implementation plan can then allocate some or all of this additional "safety margin" to the emissions budgets for transportation conformity purposes. In this case, the safety margin equates to 21.4 ug/m³.

~~[Editorial Note: Inclusion of the following paragraph in the document to be proposed for public comment depends on the results of the modeling analysis described therein. The results of this analysis were not known at the time this document was mailed to the UAQB members, but will be known by the time of the UAQB meeting. Should the model results show that the area would still be maintaining the PM₁₀ standard using the expanded MVEB, Alternative 1 would be included.]~~

~~[Alternative 1.]~~ Using the same emission projections for point and area and non-road mobile sources, the UAM-AERO model was re-run using 23[.00] tons of NO_x per winter weekday for mobile sources (and 25[.00] tons/winter weekday of PM₁₀). The revised maintenance demonstration for 2017 still shows maintenance of the PM₁₀ standard. It estimates a maximum PM₁₀ concentration of 130.7 ug/m³ in 2017 within the Utah County portion of the modeling domain. This value is 19.3 ug/m³ below the NAAQ Standard of 150 ug/m³. This maintenance plan allocates 2.1 ug/m³ of the safety margin to the transportation MVEB, and thereby sets the NO_x MVEB for 2017 at 23[.00] tons/winter weekday.

~~[Should the modeling results indicate otherwise, Alternative 2 would replace Alternative 1.]~~

~~[Alternative 2. This maintenance plan sets the NO_x MVEB for 2017 at 21 tons/winter weekday.]~~

[In terms of emissions, the safety margin can be described as follows: Using 25.00 tons per day of PM₁₀ and 23.00 tons per day of NO_x when modeling mobile source emissions in 2017, the highest predicted concentration of PM₁₀ was 130.7 ug/cubic meter within the Utah County portion of the modeling domain. This shows that the safety margin is at least 1.37 tons per day of PM₁₀ (25.00 tons per day minus 23.63 tons per day) and 2.30 tons per day of NO_x (23.00 tons per day minus 20.70 tons per day). This maintenance plan allocates a portion of the safety margin to the mobile source budgets.]

(d) Net Effect to Maintenance Demonstration

Using the procedure described above, some of the safety margin indicated earlier in Subsection IX.A.10.c.([6])(4)) has been allocated to the mobile vehicle emissions budgets. The results of this modification are presented below.

- (i) Inventory: The emissions inventory was adjusted by adding the following sums to the on road mobile source emissions totals for the entire modeling domain:
- | | | | |
|----------|-------------------------------|-----|------------------------------|
| in 2015: | 4.04 ton/day PM ₁₀ | and | 0.19 ton/day NO _x |
| in 2017: | 5.41 ton/day PM ₁₀ | and | 2.49 ton/day NO _x |

(ii) Modeling:

The effect on the modeling results throughout the domain is summarized in the following table (which shows predicted concentrations in ug/m³). It demonstrates that with the allocation of the safety margin, the NAAQS is still maintained through 2017 in all areas.

Table 38. Modeling of Attainment, 2005 - 2017, Including the Portion of the Safety Margin Allocated to Motor Vehicles.

2001 Base Year Episode	2005	2008	2011	2014	2015	2017	Plus Safety Margin	
							2015	2017
Cottonwood	91.45	89.13	88.57	89.92	93.40	93.69	95.35	95.63
Hawthorne	124.17	121.71	119.76	120.84	125.60	125.97	127.95	128.32
Magna	81.33	80.32	80.11	80.52	80.44	81.91	82.24	82.54
N. Salt Lake	144.05	143.07	142.96	144.37	147.27	147.71	148.09	148.53
Ogden	113.19	113.04	113.75	116.62	121.75	122.31	133.20	133.23
Lindon	78.82	81.00	82.97	84.79	90.16	90.35	91.95	92.14
N. Provo	62.04	62.22	63.50	65.11	69.68	69.87	71.45	71.63

2002 Base Year Episode	2005	2008	2011	2014	2015	2017	Plus Safety Margin	
							2015	2017
Cottonwood	132.83	125.45	121.54	121.08	124.04	125.23	125.38	126.56
Hawthorne	136.60	127.78	122.80	122.03	125.35	126.61	126.73	127.98
Magna	93.92	94.03	95.34	96.73	96.00	98.47	96.60	99.07
N. Salt Lake	148.77	139.92	134.87	133.19	136.01	137.27	137.41	138.66
Peak Cell (near Cottonwood)	149.97	140.36	134.92	133.85	137.43	138.75	139.08	140.39
Ogden	117.70	116.09	116.02	117.59	121.20	122.12	126.60	127.51
Lindon	131.09	126.27	124.12	123.87	127.71	128.62	129.79	130.69
N. Provo	122.46	118.22	116.74	117.34	121.60	122.34	123.58	124.31

(7) Nonattainment Requirements Applicable Pending Plan Approval

CAA 175A(c) - *Until such plan revision is approved and an area is redesignated as attainment, the requirements of CAA Part D, Plan Requirements for Nonattainment Areas, shall remain in force and effect.* The Clean Air Act requires the continued implementation of the nonattainment area control strategy unless such measures are shown to be unnecessary for maintenance or are replaced with measures that achieve equivalent reductions. Utah will continue to implement the emissions limitations and measures from the PM₁₀ SIP.

1 **(8) Revise in Eight Years**

2
3 CAA 175A(b) - *Eight years after redesignation, the State must submit an additional plan revision*
4 *which shows maintenance of the applicable NAAQS for an additional 10 years.* Utah agrees to
5 fulfill this obligation at the appropriate point in time.
6

7
8 **(9) Verification of Continued Maintenance**
9

10 Implicit in the requirements outlined above is the need for the State to determine whether the area
11 is in fact maintaining the standard it has achieved. There are two complementary ways to
12 measure this: 1) by monitoring the ambient air for PM₁₀, and 2) by inventorying emissions of
13 PM₁₀ and its precursors from [various]~~[various]~~ sources.
14

15 The State will continue to maintain an ambient monitoring network for PM₁₀ in accordance with
16 40 CFR Part 58 and the Utah SIP. The State anticipates that the EPA will continue to review the
17 ambient monitoring network for PM₁₀ each year, and any necessary modifications to the network
18 will be implemented.
19

20 The State will also continue to collect actual emissions inventory data from all sources of PM₁₀,
21 SO₂, and NO_x in excess of 25 tons (in aggregate) per year, as required by R307-150.
22
23

24 **(10) Contingency Measures**
25

26 CAA 175A(d) - *Each maintenance plan shall contain contingency measures to assure that the*
27 *State will promptly correct any violation of the standard which occurs after the redesignation of*
28 *the area to attainment. Such provisions shall include a requirement that the State will implement*
29 *all control measures which were contained in the SIP prior to redesignation.* Utah has
30 implemented all measures contained in the plan, and will continue to do so even after
31 redesignation. This revision need only address such contingency measures as may be necessary
32 to mitigate any future violation of the standard.
33

34 [This Contingency Plan supercedes Subsection IX.A.8, Contingency Measures, which is part of
35 the original PM₁₀ SIP.]
36

37 The State will rely upon ambient PM₁₀ monitoring to determine whether a violation has occurred.
38 Upon monitoring a violation of the PM₁₀ NAAQS, the State will take the following actions.
39

- 40 • The State will identify the source(s) of PM₁₀ causing the violation, and report the
41 situation to EPA Region VIII within four months.
- 42
43 • The State will identify a means of corrective action within six months. The maintenance
44 plan contingency measures to be considered and selected will be chosen from the
45 following list or any other emission control measures deemed appropriate based on a
46 consideration of cost-effectiveness, emission reduction potential, economic and social
47 considerations, or other factors that the State deems appropriate:
48
49 - Re-evaluate the thresholds at which a red or yellow burn day is triggered, as
50 established in R307-302;
51

- 1 - Further controls on stationary sources;
- 2
- 3 - Expand the road salting and sanding program in R307-307 to include Weber
- 4 County.
- 5
- 6 The State will require implementation of such corrective action no later than one year after the
- 7 violation was confirmed.
- 8